The Builder.

VOL. XVI.—No. 804.

The Condition of the Thames.

QUESTIONLESS the state of the Thames is worse this year than it ever was before. A glance at some of our back volumes will show there have often been similar complaints, loud as well as deep, at this time of the year. Nevertheless, the river is now worse than it ever was; and must necessarily become worse still. It is to be hoped no one drinks of it. If any do, we would shout with Buckstone, in "The Unequal Match,"—"Rash man, forbear!—it's *beastly!*" For years past the deterioration of the river has been noticed in this journal; and from time to time we have endeavoured to direct attention to the subject as one of great public interest. Every day will increase the evil. Without taking into consideration the immense annual growth of London, the prevention of cesspools, and other sanitary works which are in progress, will, before two years are past, add 25 per cent. to the poisonous matters which flow into the Thames.

It must, too, be borne in mind, that other large districts give their refuse to this river.* There are also gas-works, the most unwholesome manufactories, slaughter-houses, cowsheds, stables, breweries, and the drainage of thickly-filled graveyards, to aid the mischief; and yet intelligent men can be found to maintain the *salubrity of the Thames*, though the present hot weather has worked a change in the opinions of some of them. Even the medical officer of the *Dreadnought*,—the same gentleman who has been asserting over and over again in all sorts of places, that "great exaggeration, if not total misapprehension prevails upon the subject of the pernicious influence of the Thames upon the public health," and who has done mischief by his previous statements, has been forced to admit the injurious effects of the Thames on the patients in that vessel, and has suffered slightly himself. The health of thousands must be affected by it, and what *may* occur cannot be calmly contemplated.

A few days ago the thermometer rose to the extraordinary height of 94·5 degrees in the shade; and on that day the neighbourhood of the river was unbearable.

Whilst lately examining the north shore of the Thames from the Houses of Parliament to London-bridge (a most unpleasant task), we made a rough measurement at about the time of low water, and are disposed to think that there is an average breadth of 100 feet of the most putrid soil skirting this edge of our great city for some hours during each day. We were told by several persons who are employed in this neighbourhood, that in parts the deposit is more than 6 feet deep: the whole of this soil is thickly impregnated with impure matter, and at the opening of such sewers as have not been passed into the river beyond low-water mark, the condition is too bad for description.†

Many of our readers may have noticed the black, offensive, and dangerous matter which is taken from choked drains in the neighbourhood of cesspools. There are many thousands of tons of equally poisonous stuff on the shore of the Thames. A considerable quantity of such matter is kept in solution by the action of the tide and the steam-vessels, which adds materially to the ill condition of the water. The section we have engraved* will give some idea of a considerable extent of Thames bank.

While wandering along this putrid shore, which is both a shame and wonder in the nineteenth century, thoughts arose, in spite of some overpowering feelings, of other days, of processions of stately barges, full of the influential citizens in whose hands the well-being of Father Thames was placed. This body found the stream clean and wholesome; the apprentices and citizens came from long distances to avail themselves of this water-supply. For years festive bands of citizens, at stated intervals, mingling pleasure with business, went forth to survey the important charge, which was in a healthy condition, entrusted to their care: now Father Thames has become such a castaway that the Lord Mayor has declared that he cannot again venture on a visit. The days of "swan-hopping" and river perambulation are at an end. Whatever excuse there may be as to the state of the river from the drainage, there is none to be found for the existence of encroachments and mud-banks, which are a disgrace and injury to the greatest commercial city in the world.

Besides the banks, on both sides, large islands are visible near Westminster and Waterloo bridges, and indications of others may be noticed. It is said that these accumulations have been rather encouraged for the purpose of preventing the wash against the foundations of the bridges; these islands are, however, evidently increasing in size, and without attention others will be formed. This should not be allowed; many instances might be mentioned of the great injury which has been caused to rivers, by allowing such elevations to occur. It is worth while to look at the clear yellow sand-colour of these islands, over which the tide passes briskly, and compare it with the thick matter which is washed up, and left at the sides.

The appointment of the Metropolitan Board three years ago, was an acknowledgment of the necessity for immediate action; and yet all this time has passed, and this important affair is but little forwarded; and it has been lately mentioned that an inquiry was necessary to decide whether it was wholesome or not to pass the sewage of a population of about three millions of people to a river in the very centre of it!

The opinions of those who in various ways represent the metropolitan parishes, seem to have changed with this circumstance. Meanwhile matters have been getting serious, and as we will show by some further inquiry, vigorous action must now be used, and all the bearings of this case considered by Government and the Parliament.

Last Sunday evening, just after low-water, we passed along the shore, and those who would have an idea of the extent to which the Thames is used, should visit the landing-place, at Hungerford-bridge, on a fine Sunday evening. The day had been cooler than some days previously; nevertheless, the stench at different points was frightful, and produced a sickness which lasted till the next morning. Bad as was the state of affairs at the time referred to, the watermen at the landing-places said the air was "lavender" to what it had been. Early in the morning, they continued, when the first steam-packets begin to move about, the smell is enough to strike down strong men. During a few hours of the night, when there is but little traffic, the heavy matter sinks, and the renewed agitation in the morning causes an escape of pungent gases, of a most poisonous description. Even the dipping of the oars, at early hours, produces a sickening sensation. The weight of the impure portion of Thames water is a peculiarity which formerly caused it to be held in much favour by sailors for long foreign voyages. Large establishments were formed for the purpose of filtering it; but even so lately as 1840 and 1841, many ships took it without this process from the outside of the docks. A person who has sailed from the Thames, but who is now a waterman, described how that he had been twelve months and upwards on board ship with Thames water, obtained in the manner just mentioned, and that it remained good all the time—the heavy earthy matters settled firmly to the bottom of the casks; but on the bung being started, it was necessary to give the water "a wide berth," for the smell was almost unbearable—sometimes the force of the gas burst out the bungs with a report like a pistol. A similar process, on a large scale, is going on daily on the Thames. The soil, put in motion by the action of the water, is now more considerable than formerly; and the amount of poisonous gases which is thrown off, is proportionate to the increase of the sewage which is passed into the stream. Fifteen or sixteen years ago the Thames water was not so bad, and persons on the river did not hesitate at dipping in a vessel and drinking the contents. Such a thing now would be like an act of insanity; and yet we are told, on good authority, that in a part of Rotherhithe, a number of poor persons have no proper water-supply, but are obliged to use for drinking and other purposes, the Thames water in its present abominable condition, unfiltered. This is a matter which should meet with immediate attention.

In order to form a proper notion of the condition of the Thames shore, it is necessary not to restrict the examination to the landing-places alone—for care is taken at these points to remove the slimy matter as much as possible;—but even here, as we found at one place by an excavation, there was a depth of over 4 feet of poisonous soil; and it is certain that a large portion of this is cesspool refuse. The surface left exposed at low tide on the Limehouse shore, is about 200 feet in width.

An individual who has been in the habit of crossing at this point, morning and evening, for several years past, has had painful experience of the yearly increase of the impurity of this stream. The increase complained of has been evidently corresponding with the extension of the sewerage; and, considering that the state was bad five or six years ago, and looking at it at the present time, it is serious to think of the dangers to which the metropolis is exposed. Not a week should now be wasted—for great works require to be executed—and the difference of a few weeks may cause the loss of thousands of valuable lives. While we write, information comes of the melancholy death of the wife of the Rev. Mr. Blackwell and four children, near Vauxhall-bridge, the result, according to the family physician, of the noxious effluvia of the Thames water.

It would be useful to state the number of houses which have been drained into the Thames during the last five or six years. There seems, however, to be no mode of gathering this, but by applying to the several vestries

* See "Memorials of Father Thames" in the *Builder*, vol. xiii. *passim*.

† We must not have it supposed from this observation, that we agree with the Board of Works in the determination they have come to, to spend some thousands of pounds in now extending the outlets of existing sewers further down into the river. The resolution is most unwise, and should be forthwith rescinded, as entailing waste of money, and worse.

* See p. 454.

and district boards of the metropolis—too troublesome a task to undertake.

In considering the effect of the condition of the Thames on the health of the metropolis, it must be borne in mind that the actual number of those who dwell on the shore is small in comparison with those who are all day in the neighbourhood. Thousands are employed during the day only, in the docks, the canal, and in the large manufactories, warehouses, and other establishments which line the river; most of these workmen travel long distances to closer neighbourhoods after the labours of the day are ended, so that there may be a difficulty in clearly tracing the amount of mischief which is actually caused by the pestilential condition of the Thames. During the present summer two of the fortunately few fatal cases of Asiatic cholera that have occurred have been with good reason attributed to the foul state of the river; one of the sufferers was a young man who worked near the outlet of one of the sewers in this neighbourhood, and died after a few hours' illness at a place at some distance; the other also worked here, and died at his home in Smithfield. Doubtless fever and other diseases have been caused by the condition of the Thames and the docks, which will, where fatal, be classed with the deaths of other localities. The docks especially are a fertile source of disease.

When in this district we glanced at the basin and other parts of the Regent's canal, and found that a large quantity of water is daily passed from this important work into the river. The water was very cloudy and of a brownish colour; but, compared with that of the Thames, its purity looked remarkable, and there is not a large amount of animal refuse in this tributary. Complaints are, however, made of certain offensive manufactures which drain into one of the branches. "But, in order to show you that we do good rather than harm," said a superintendent on duty, "please to look here where the Thames is just beginning to flow into the entrance lock of the canal." And truly the effect was a startling one. The stream of the Thames, of a sable hue, "thick and slab," could be seen meeting and invading the canal, presenting such an appearance as might be expected by the bursting close by of several hogsheads of Warren's blacking,—a much more obvious and less gratifying difference, we need not say, than is observable where the Rhine meets the Moselle.

> "Like the two lives that are blended
> When the loneliness is ended,
> The loneliness each heart hath known so well;
> Like the sun and moon together,
> In a sky of splendid weather,
> Is the marriage of the Rhine and the Moselle,"—

writes Mr. Arnold; and although it will not apply to the marriage of the Thames and the Regent's Canal, it will serve to sweeten our dirty subject. Our engraving* does not exaggerate the contrast. The sides and bottoms of boats become covered with solid matter; objects are not visible at even an inch below the surface; the reflection of ships is very faint, but shadows almost as strong as those on terra-firma are thrown on the face of the water by the sunshine. When gravely pondering these things, De Foe's description of the neglected condition of London at the time of the visit of the Great Plague of 1665 came to mind; and we think with Byron of "Ships rotting, sailorless," and other uncomfortable associations.

It is evident that when the river is in such a bad condition, places like the West India Docks, entirely dependent on the Thames for a supply, must in most respects be no better circumstanced; for although the water is not so much disturbed in these reservoirs, the West-India Docks are not supplied with water to any extent but at flood tides. No doubt there is here a large quantity of dangerous deposit; and the partial stagnation of such a body of water, impure in the first instance, cannot be good. The process of flushing, too, at the spring-tides, must be attended with very great danger.

In passing along the foul shore we came to one of the Thames tributaries, and the scene so clearly illustrates an existing evil, that we have engraved it for the benefit of many who cannot be expected to visit such a locality. This place is a creek which extends some distance inland, similar to that which has been so much complained of near Blackfriars-bridge. At the north end is a large sewer, which drains Bow-common, and all buildings in that direction. The mouth is partly covered by a loose iron flap, which, when the tide is out, allows the sewage-water to flow in a rapid stream. Dwelling-houses are built on the sewer-wall, and around it. The people living about here have, in most instances, sickly children, who in a measure resemble the poor plants observable in some of the windows about. Everything around is bad. The bank, when the tide goes out, is covered with filth; and when the number of the similar tributaries which flow to Father Thames, both night and day, is recollected, his state is not to be wondered at. The people here are thankful that the refuse from the gas-works is no longer allowed to escape, for at times they were nearly suffocated.

Both Houses of Parliament are now loud in their condemnation of the existing state of things. They have the evil at their own door—a retribution,—for it is certain that the present conditions are in a great measure the result of want of forethought and consideration of the subject. Every one must now see the stern necessity for immediate action, and we trust that a spirit of co-operation will be shown by the Government and Parliament, and the representatives of the London parishes, and that satisfactory arrangements will at once be made for a proper and permanent remedy. This part of the subject we treat of in a separate article.

And let our provincial cities and towns take warning in time, and avoid the transformation of their rivers into reeking sewers and decomposing cess-banks.

* See p. 454.

THE POSITION OF THE DRAINAGE QUESTION.

LONDON is at length roused to the conviction that "something must be done" towards the dispossession of its sewage, and the liberation of the Thames from the pollution we have been illustrating. One misfortune, when a question gets into this position, is, that the *something* which is taken hold of rather than chosen, to make up for the loss of time and combat the evil accumulated, it is many chances to one, will not be either the proper thing or the due conclusion from evidence; or at least, that it will only stave off the difficulty for some few years, when it will again occur with re-duplicated force, and new and added conditions. The present state of the London street and railroad communications—more connected with the sanitary question, and the provision of dwellings, than is generally apprehended—would afford illustrations to the case in point; as possibly, even would the water-supply, so recently legislated on,—considering the tendency above Teddington Lock, towards that very state of things which now exists in the course of the Thames between Putney and Blackwall.

Time lost can never be regained, and there is really no means of summarily correcting an evil such as the especial one from which now London suffers, and which may in August, or earlier, repeat the horrors of the Great Plague. Tons of lime at an expenditure of 1,500*l.* per week may be used, as at present; but such measures are confessedly not justifiable for other circumstances, on grounds of economy, and may even increase the expense of permanent measures,—if not even conditions of the navigation, and others non-sanitary and proximate. Errors must have been committed some way, by the various commissions and the boards imperial and municipal and metropolitan,—delay which could have been avoided, as by the assumption of responsibility that the law actually gave to the First Commissioner, and by the earlier commencement of the investigation instituted by his direction, of the primary data; and by the formation from such data of more carefully considered conclusions,—London, however, is simply suffering the consequences of years, or rather centuries, of inattention to the first conditions of the existence of towns; and to suppose that any remedy can be supplied positively next week, or this year, to the real evil of the state of the Thames and of the sewerage, is to assume reversal of the natural sequence of things, and that results can be made to follow without being brought from causes or by merely wishing for them. The first point is to get a clear knowledge of facts: without this it is idle to speak of what the engineering talent of this country can do, or has done.

Now, this primary knowledge is still very far from being existent. When we find the best chemists really ignorant of the nature and composition of the gaseous exhalation from the river, and the *Times* stating one week, that "at high-water the river is comparatively sweet," the effluvia being assumed to arise "principally from the vast banks exposed at the ebb,"—whilst, as it has appeared to all others, ourselves inclusive, the nuisance is most noticeable about the time of high water,—we have some indication of the state in which the subject is, and of the possibility that under the pressure of alarm, there may be based upon mere assumptions or fallacies, the undertaking and construction of works which haply may even aggravate the evils that all parties would remove.

We verily believe, whatever the impressions conveyed by the reports of meetings and conferences, that the difficulty of the London sewerage question is not mainly a financial one. No Government could resist the claims of the Metropolitan Board, backed by a simple statement of the evils and of a lucid and workable scheme for the abatement of them. And whilst it is plain to us that the metropolis should bear one portion, and perhaps, the bulk, of the outlay, it is clear that other towns benefited should contribute, and that there is a claim on the whole country to assist, and this not disregarding the urgency of their own cases,—a subject which we have pressed on public attention. The point at issue is,—what principle of action offers a reasonable chance of freeing London and its district from a nuisance. Had we ourselves felt that either of the schemes for outfall and main intercepting sewers claimed the limited ground of recommendation adverted to, we should have supported such scheme even on the assumption of heavy expenditure, and even on that of experimental character to a certain extent, as an attribute of the scheme. But from those who are urging the adoption of one of these schemes, or one of analogous kind, we ask for attention to the questions we were compelled to raise last year, when the Report of the Referees on Metropolitan Drainage appeared, and which we have had to allude to since. We cannot overcome the difficulty in the prospect that all existing objections to use, within the metropolitan boundary, of the Thames as the outfall, would be intensified in the use of narrow channels, or sewers, having the sewage in a more concentrated form, all along the line thereof. Assuming these sewers as wholly covered, it has yet to be shown that the evil would not prevail with fatal force at the outfall and other places, and whether the sewers, in the absence of a system of ventilation suitable to the exigency, would not ventilate themselves into the houses to a greater extent and with more serious evils than under the existing sewerage. And, as to the place of outfall, whether into the German Ocean, or into the river at Sea Reach, or at Barking Creek, we observe that the influences antagonistic to the final discharge of the sewage into the ocean have so much increased in their appearance of probability with the progress of the evidence during the last few days, that it seems to be doubted equally by the several supporters of such schemes, whether any object of theirs could be gained lower down, which they would not equally well attain by outfall somewhere in the upper part of the river. Dr. Thompson, following upon Mr. Gurney's statement that sewage after disengagement of air-bubbles, is slightly heavier than fresh water, has shown that it must be considered as lighter than sea-water,—whereby it follows, he says, that there is a bar to its flow in the course of the Thames, below a certain point, and that in this manner it is kept in suspension, till by the action of the tide meeting at so many points the down-flow, and producing a fight or conflict, the mud is raised up and carried still further up the river. At the ebb-tide the tendency, on the other hand, is towards deposition. Dr. Thompson, before the committee, last week, produced a model, consisting of an elongated glass tank, with shelving bottom, at the lower end of which was a square chamber, having means of communication at pleasure. The former was filled with Thames water, and was intended to represent the course of the river to the Nore, whilst the chamber filled with sea-water, coloured pink, represented the ocean. Along the whole length of the former, a pipe was carried on the exterior to represent the proposed intercepting sewer, and communicating with both vessels at the lower end. He then

poured into the top of this pipe a blue fluid of the same specific gravity as sewage, which on reaching the outfall, instead of mixing with the sea-water in the chamber, the bottom of which was lower than the tank, immediately commenced a retrograde movement, and passed up the shelving bottom of the tank until its top water line was level with the point of outfall. On removing a cock, and opening a communication between the tank and the chamber, the sea-water passed up the incline underneath the sewage; and again, on filling the tank so that it overflowed into the chamber at the lower end, the river-water remained in a distinct body upon the surface of the sea-water. The object was to show that with the relative specific gravities of the fluids, Mr. Gurney was right in concluding that if an intercepting sewer were carried down to Sea Reach, a large portion of the sewage there discharged would not go out into the ocean, but would be brought back, and by the agency of the tides would be deposited on the banks, if left as they now are; that the sewage might as well be discharged at London-bridge as at Sea Reach; and that the farther you go down the river, the more does the specific gravity of the water and the disposition to return the sewage increase. We stated our apprehension long since that this would be found the case.

Assuming the facts proved, as above stated, it would seem that for the removal of the nuisance according to any plans which are prominently before the public, we are left to the discussion of means by deodorization or precipitation, or by the agency assumed to be called into use by the provision of embankments, or those modifications in the bed of the river for a similar object, which Mr. Gurney first proposed, and to which he has lately added some further matters of suggestion. So long, however, as the first *data* for opinion, are being now only brought out, any conclusion, it is sad to say, would be made under disadvantages possibly fatal to every object. We believe that the reason why London has not been placed out of the chance of suffering, from the pestiferous exhalations of sewage is, that none of the inquiries have been brought to the position here referred to, as to facts. The evidence, bulky as it seems in print, has been incomplete and partial; the subject has been taken up with impetuosity, at odd times, and reported upon, before there was the foundation for a report, when it happened that some object, political or otherwise, was to receive attention rather than the all-important one of the inquiry. The result is, that every report is opposed to its predecessor, instead of adding to it information and conclusions at the point where the former broke off. It is little more than a year since the results of the first real inquiry into the methods of deodorizing and utilizing the sewage of towns, appeared in print; and up to this time the question of the applicability of sewage irrigation as the means of affording the outfall for the London sewage (on which lately, in noticing the preliminary report of the Royal Commission, we offered some remarks), has had no adequate examination; though every view that is taken as to the existing evil in London, adds to the arguments for extending the inquiry in that direction.

It is melancholy, considering the lives that may be involved in the subject, if we have to confess that works cannot at once be undertaken on the basis of either of the schemes which have received chief attention. But, can we say that either of them is based on the knowledge of the primary *data*, after the statements which the condition of the Thames during the last fortnight has called forth? What is that which causes, and what is the agency which developes, the stench of the river? The evidence is most conflicting. Sulphuretted hydrogen and supposed hydro-carbons, are each named as the matter which is smelt. The heat on the mud-banks, and the mechanical agitation of the water by the steamers, have had their various supporters, according as these have declared for the theory of the mud, or of the water, as the main agent. The stink, however, is simply that of sewage water—analyzed in whatsoever way, chemically or by the nose; and it comes from the water, through the ordinary process of evaporation going on, over a large exposed surface, in greatest force during the season of hottest weather. Still, it is not easy to say why, as it has been asserted by Dr. Challice, the nuisance from the Thames should be greater at times than that of an open sewer like "The Earl," which has a proportionately greater amount of concentrated sewage. No ingredient was discovered by Dr. Hofmann and Mr. Witt, in their experiments for the Referees, likely to produce such exhalation, in particular excess in the water in the lower part of the river, as compared with that at Kew; and these authorities were obliged to assume that nuisance resulted from the peculiar *condition* which the water assumed. What is this condition? Mr. Gurney has noticed that there is a distinctive character in the water—which begins at a point a little above Putney, and terminates below Blackwall. In what respect is this appearance allied with the "putrefactive fermentation?" The latter is viewed as the agent of purification, at the expense of the air,—according with the process which goes on in the purification of Thames water, if it be stored as it was formerly, when used on board ship. The purification of a stream must, however, be a matter governed by distance and quantity of impregnation; and as the favourable circumstances in both these particulars, have been undergoing gradual reduction in the case of the Thames, as in all the other rivers of the country, it is possible that the point has at length been reached at which the contribution to the nuisance is in excess of the force of innoxious purification. There is this special circumstance in the case of London, that, owing to the length of the sewers and the extent of the area included in the system, there is time for decomposition to be effected next to our very habitations. The sewage is delivered under conditions different to those existing at Tottenham, where so little maceration takes place that pieces of soap are recovered at the outfall sufficient to pay for the wages of the boy engaged in a certain duty thereat; but under conditions which may at least need to be investigated ere it be said that the deodorization or precipitation which may answer in the case of some country town will be adapted to the case of London. And though it seems to have been forgotten by Mr. Tite and others that the river receives several tributaries below Teddington Lock, it is by no means obvious that the immense volume of water which is now taken from the river can be prevented from returning to it as at present, without apprehension of injury to the navigation.

Whilst evidence as to the facts and causes of the condition of the river is contradictory, the statements as to effects on the health of London bear probably only the appearance of being so. On the one hand we have had particulars of deaths or illness considered to be traceable to the river, besides the facts of the noxious effluvia in the Houses of Parliament and the courts of law; on the other hand, during that very time, we have had the reports of the Registrar-General and of the Medical Officer of the City, saying that the population of London then appeared to be "in a very healthy condition," or that the mortality returns were only "a little above the average." The inference should be merely that a little breathing time is allowed ere the evil at present localised, extends over a larger area, or transmits infection to the rest of London. We therefore trust that the inquiry by the committee of the House of Commons will be completed, and not cut short, and brought to a so-called conclusion, in deference to any unseemly haste on the part of Government or members of Parliament to close the session, and escape from the effluvia at Westminster. If the present chance be lost, we may go on for several more years reaping the effects of delay and ignorance of causes, or of some adopted expedient or hurriedly-devised plan. The committee have been paying somewhat too prominent attention just now, to the special case of their own quarters, as well as to the commercial question in sewage utilization; but they may come to the right conclusion if they will continue their labours, and hear all that ought to be heard on the difficult subject that is before them.

Mr. Gurney's proposal to dredge two deep channels in the bed of the river should be very carefully weighed by engineers ere any opinion is expressed in favour of it. And it should not be assumed in the present state of the inquiry that embankment will cure the main evil, even though found adapted to the other circumstances of the Thames, and of its utilization as a line of communication—greatly important as these objects are to the necessities of London. The question concerned is one into which we must shortly enter; but we may at present desire to know how, if the large docks are themselves the means of adding to the nuisance, the docks for barges, as proposed in different schemes, would be kept from contributing a new addition. The *rationale* of a cleansing operation in their case may be made apparent; we simply say that at present the demonstration of the mode has to be made.

Whether the plan of distant outfall and main intercepting sewers, that of deodorization or precipitation at the sewer mouths, or irrigation, or that of embankment or rectification of the banks of the river, be adopted as the main principle, confidence must be placed in some one authority. Under the system of check and counter-check, which has been lately in vogue in public works, no engineer or architect, with due regard for his reputation, would wisely be concerned in the design or management of such works. The Government of this country may do very much for the improvement of London: they may induce the first steps to action, as just now by aiding the elucidation of the *data* on which alone there can be any good result; and they can do something to stop the perpetuation of present evils by taking measures that we could readily indicate, to discourage the building on ground which no science or engineering skill can drain in the efficient manner that health requires. They will find in these steps, that they will be led to the consideration of the London street and railroad communications, and to many other matters that do not immediately appear connected with sewerage, but which, nevertheless, one and all, belong to the sanitary question, and are inseparable from it, as from the true duty of a Government.

THE CURRAGH CAMP.

A TRIP TO KILDARE.

A DESIRE to investigate still further "the condition of the soldier," having led us into the locality of Kildare, we shall, previously to proceeding on our special mission, stop to note a few particulars relative to the town, and the features of antiquarian interest in its vicinity.

Kildare, although it has now dwindled into comparative insignificance, was famous for centuries as the "Citie of Saints;" some remains of its former grandeur still existing,—its ruined cathedral retaining marks of its original beauty, extent, and magnificence; and its round tower, one of the loftiest in the kingdom, still attracting the attention of the antiquary. The bishopric of Kildare is said to have been founded in the fifth century, by St. Coulœth.

The tower is 132 feet in height, with a curiously crenellated top. In Harris's edition of Ware we find the following passage:—"The tower of Kildare having been pointed and repaired within these few years, had then a regular neat battlement raised on it, which before was only an irregular broken wall, as appears by the scheme given thereof by Sir Thomas Molyneux, and which I myself well remember."

This scheme or sketch is engraved in the "Natural History of Ireland," by Dr. Gerard Boate and Sir Thomas Molyneux, where it is shown without the battlement, and its height described as being at that time only 107 feet. Dr. Ledwich states it to be 110 feet in height. The ruins of the cathedral are well kept, and various relics of antiquity have been collected and preserved in the walls of the adjoining church. The sepulchral vault of the Geraldines is in this ruin, and here (it is popularly supposed) lie the remains of the gallant Lord Edward Fitzgerald; but, according to Mr. Sloane (author of the "Pencillings of Ancient Dublin"), that ill-fated nobleman sleeps in St. Werburgh's Church, Dublin, under the altar.

Between the Curragh and the ancient town of Naas are the ruins of Jigginstown Castle, an enormous building of brick, commenced by the Earl of Strafford but never completed. A person purchased it some years ago with the intention of selling the Dutch bricks of which it is composed, but failed to extract any of them, so compact is the mass.

Passing hence to the camp, which is situated from Kildare and Newbridge (both stations on the Great Southern and Western Railway) at a distance of about three Irish miles, we pass through the unrivalled and world-famed "Curragh of Kildare,"—a plain of about 4,500 acres, the property of the Crown, and presenting a velvet sward to the pedestrian and delicious pasture to the motley groups of sheep which, so irregularly distributed thereon, add to its artistic beauty. The new stand house, erected by the railway company, is a feature of interest, and commands a perfect view of the entire race-course.

The camp is situated on an eminence attained by a gentle ascent, and extends some two miles, being terminated at one end by the "Hare-park," in which are the hospital quarters of the second brigade; and nearly so at the other by the residence of the commander-in-chief of the district, Sir Richard England, which is detached, however, and situated in a valley at a short distance from

the other buildings. The huts are ranged parallel with, or at right angles to, each other, forming streets and squares, and are spaced at reasonable distances to guard against the spread of fire. With a similar object in view, screens have been provided, and a few times effectually brought into requisition.

Central, or nearly so, between each extremity of the camp, is a clock-tower, serving also as a cistern for the supply of water to the mains, which branch to the various squares and departments. This structure is some 65 feet in height, of brickwork with stone dressings; is of a permanent and substantial character; and, unlike many similarly intended buildings in Ireland, has some architectural pretensions. Water is pumped up to this level by a powerful engine, situated in a valley near the camp, with the requisite accommodation for parties to tend the same, and in proximity with a large reservoir, which is constantly full.

To the right and left of the clock-tower are two spacious edifices for religious purposes, appropriately fitted internally, one being for Roman Catholics, and the other for members of the Established and Dissenting Churches. These are certainly of a very unecclesiastical character, according to our notions now-a-days, and have huge projecting gables, supported by iron brackets, somewhat after the Swiss fashion, and for what apparent end it would be rather difficult to satisfy one's mind; however, they seem to answer their intended purposes, and we therefore pass on to other portions.

We should mention that all the structures in the camp, with exception of the clock-tower, engine-house (before alluded to), the tennis court, and the culinary offices attached to the mess-rooms, are of temporary character, with timber walls, partitions, and roofs covered with asphalted felt; the fire-breasts, chimneys, and foundation-walls only being of brick. Externally they are, or were, painted with what now presents a dirty reddish brown, and internally not at all. On the whole, then, it may be inferred that the appearance of the camp is by no means imposing; and the ordinary fever sheds erected through Ireland by the Poor Law Commissioners have a much cleaner and tidier appearance.

The huts vary in size,—those for the married officers and soldiers being generally larger, and containing apartments averaging 15 feet by 10 feet; the rafters springing at a height of 6 feet from the floor, and giving an additional height of about 2 feet to the sheeted ceiling, which, however is quite too low, both for health and comfort, and, combined with the closeness of the asphalted roof, producing a very generally complained-of oppression on the brain. There is one fact to which we would draw special attention, viz.—that frequently single officers are appropriated apartments in the same hut with the married, the bed-rooms only being separated by thinly-sheeted partitions, not only insufficient to preserve the privacy of each dwelling by preventing the transmission of sound, but the horizontal joints of the fresh wood opening fully half an inch or more, enabling the occupants of each to see into the apartments of the other, unless previous precaution of screening may have been adopted. In consideration of delicacy alone this state of things is very reprehensible, as ladies are frequently compelled to listen to conversations and expressions at unseasonable hours, not suited to ears polite. From defective materials above alluded to, and palpable want of care in making close joints to the sheeting of the outer walls, the cold of the huts in winter is, we are told, intolerable, and the occupants live in an incessant draught, which adds not a few to the cases of rheumatism and sciatica which come under the care of the medical officers. Some of the staff officers are allowed the luxury of canvassing and papering over the inner sheeting of their huts, while others, equal in position, are without it. If one, why not all? The windows and doors freely admit wind and rain, and damp is generally complained of; it being a matter of considerable difficulty to prevent wearing apparel and furniture from being mildewed. A little foresight in the beginning would have obviated this and other defects. Contiguous to the huts, but sufficiently distinct for sanitary considerations, are conveniences, from which the soil is abstracted by night, through trap-doors in the outer walls. These, however, are specially for the males, but none are provided for females, which is productive of much inconvenience. Some of the huts have kitchens, while others are without them, as also are found wanting in the ordinary requisites of a scullery and washhouse, and necessitating the occupants to send their meats to be baked in the general ovens.

In the hospital departments the huts are constructed of similar heights, but with wards capable of containing twelve and twenty-four patients respectively, and are warmed by stoves. In point of ventilation they are in the opposite extreme to that usually apparent, and are somewhat *too effective*; for some of the patients are kept shivering in their beds by the constant thorough draft, while others, near the stoves, are roasted at the feet by the scorching heat, while their faces and hands have a cold air playing over them. The desirability of using stoves in such instances appears very questionable. The chief staff and medical officers, quartermaster-general, &c. &c. are provided with huts having zinc roofing; and some of the stores are roofed with corrugated iron. The mess-room huts are commodious, and have offices attached, but are of the same height, and exhibit the same defective construction above described.

The stabling accommodation, though not exactly as complete as that in the out-offices of our metropolitan private dwellings, is nevertheless sufficiently good to keep the war-horses in excellent condition.

We cannot conclude our notice without remarking that the appearance of those huts having gardens attached would be considerably enhanced by a little more *care* being bestowed upon their cultivation,—they being in some instances much neglected. Civilians, pent up in the limits of their Babylon, and to whom even a green patch of ground, fresh air, and odours palatable to the nasal organs, are treats rarely within reach, may envy the soldier the healthy, fragrant, and delightful aspect of his home on "the Curragh."

PERAMBULATION OF ISLINGTON.*

YSELDON, anciently pronounced and even written Eyeseldon, appears to have been the original name of the modern vernacular "Islington." So early as the thirteenth century it was occasionally written Hyseldone, and subsequently Hisselton, as in the "Turnament of Tottenham,"—

> "Hither came all the men of that countray;
> Of Hisselton, of Highgate, and of Hackenay."

More commonly, however, it was rendered Iseldon and Iselden. The Saxon etymon of Iseldon, according to Sharon Turner, is Ysseldune—the down of the Yssel,—probably of the river of Wells which joined or fell into the Fleet. Eysel or Ousel was the diminutive of Eyse and Ouse, a river or water. The Wells stream was fed by the springs which issued from the woods and flowed from the hills northward of the few solitary dwellings seated on the down or hilly pasture overlooking the north side of London. This "water," in its current towards the Fleet at Bagnigge Wash and Clerkenwell, was fed and increased by numerous land springs, associated with the famous ducking-ponds of Islington. Ben Jonson, in his comedy of "Every Man in his Humour," represents *Master Stephen* as saying of these ponds, "Because I dwell at Hogsden, I shall keep company with noné but the archers of Finsbury, or the citizens that come a-ducking to Islington ponds!—a fine jest, i'faith!" These words introduce us to a local feature—an association of by-gone times, when the Londoners sought for amusement in the Islington-fields. Howell in his *Londinopolis*, published in 1657, speaking of the out-door relaxations of the Londoners, says, for "Healthful corporal recreations and harmless pastimes London may go in the van, to any place that ever I saw yet. Go and walk in her fields, you shall see some shooting at long marks, some at buts; some bowling upon dainty pleasant greens, some upon bares; some wrestling, some throwing the barre, some the stone; some jumping, some running, some with their dogs at ducking-ponds." Islington ponds, remarks Mr. Tomlins, seem to have been noted in the seventeenth century as affording the Londoners the sport of duck-hunting, for Davenant represents a London tradesman saying—

> "'Where's dame?' Quoth son of shop,
> 'She's gone her cake in milke to sop.'
> Ho! ho!—to Islington—enough—
> Fetch Job my son, and our dog *Ruffe*;
> For there, in pond, through mire and muck,
> We'll cry, 'Hay, duck—there *Ruffe*—hay, duck!'"

These ponds mostly lay at the back of Islington, and were fed by the springs already alluded to, and which were plentiful in that locality: the ponds may be said to have extended almost continuously from the fields in the Back (or Liverpool) road, to the Lady Huntington's Chapel, in Exmouth-street, Spafields, on the site of which, more than a century since, stood a house of entertainment, known as the *Ducking-pond House*; the pond occupying the greater part of that ground which for the last seventy years or more has been the burial-ground attached to the chapel.

Pepys, in his *Diary*, 27 March, 1664, notes as follows:—"Thence [from St. James's Church, Clerkenwell], walked through the Ducking-pond fields; but they are so altered since my father used to carry us to Islington, to the old man's, at the King's Head, to eat cakes and ale (his name was Pitts), that I did not know which was the Ducking-pond, nor where I was." Pepys's walk was most probably by the pathway, northward from Clerkenwell to the back of Islington, and the Ducking-pond he mentions, was either in the Back-road, or was identical with the Wheel-pond.

The water that overflowed from those ponds that were deep, numerous, and almost continuous, in former times, formed currents and water-courses both down the Back-road to St. John-street-road, and also over the fields to where the New River-head now is (which itself was anciently a large pool), and downwards to the Ducking-pond-house, and thence to the river Fleet. Indeed, this then watery or oozy district was the place from which constant supplies of water were obtained for the priory of St. John's and the Charter House, "sweet water," to use the words of Stowe, being in former times as great a *desideratum* with our ancestors as it is now. These water supplies formed the Islington conduits, which have left their names inscribed in its modern heart of brick and mortar.

In the "Archers of Finsbury," of whom Ben Jonson speaks, we have an indirect allusion to the archery in the open level fields called "Finsbury Field," which extended from Peerless Pool, at the back of Old-street, to Islington Common, and was peculiarly distinguished in the annals of the manly and warlike exercise of archery, at a time when the strength of the nation was said to stand upon archers. In truth, the open grounds throughout the suburbs, as well as to the north of London, were almost all devoted to the practice of archery, as the burlesque titles of "Duke of Shoreditch," "Marquis of Hogsden," "Marquis of Shacklewell," "Marquis of Islington," "Marquis of Clerkenwell," and "Earl of Pancridge" denote. Sir William Davenant, in one of his poems, viz.—the "Long Vacation in London," written about 1667, thus alludes to shooting matches between the attorneys and proctors of that day:—

> "Each with solemn oath agree
> To meet in fields of Finsburie,
> With loynes in canvas bow-case tied,
> Where arrows stick with mickle pride;
> With hats pinn'd up and bow in hand,
> All day, most fiercely, there they stand,
> Like ghosts of Adam Bell and Clymme:
> Sol sets for fear they'll shoot at him."

In the same ballad is the following verse:—

> "The king is into Finsbury Field,
> Marching in battle 'ray,
> And after follows Robin Hood
> And all his yeomen gay."

It was in commemoration of her narrow escape from the random shot of an archer while "a milking" that Alice Owen built her almshouses, chapel, and school, at the south end of Islington, near St. John's-street-road and the Hermitage. The site of these has since been changed. An interesting memento of the archery butts still exists in the shape of two of the stone "rovers," or pillar marks of the shooting distances in archery practice: one of these stands at the end of Dorchester-street, Hoxton, on the east side of the New North-road, near the canal bridge: the other is fixed and preserved in the brickwork of the canal bridge, above the towing path, on the London or south side of the canal, and bears the inscription, "Scarlet." On the Dorchester-street rover, which was called "Whitehall" and "Welch ball," are the letters A. C. the date 1683, and the arms of the Artillery Company in iron let into the stone. Another stone of some celebrity exists in Islington, and may be here briefly alluded to—namely, the Whittington stone. It faces the high road at the foot of Highgate-hill, and near the ancient site of Holloway Lazarhouse or Spital, with which the original stone is believed to have been connected, as a kind of cruciform sign-post, to attract attention to the charitable institution which it confronted. The Whittington stone has suffered various vicissitudes,—one stone, indeed, having been substituted for another which had been removed, and a third substituted for the second. It is Mr. Tomlin's opinion that the original stone was much more clearly connected with the Field Lazarette or Leper-house than with

* A Perambulation of Islington. By Thomas Ediyne Tomlins, Esq. London: Hodson, Lincoln's-inn; and Ford, Barnsbury-place, Islington. 1858.

Whittington. But may it not have been legitimately associated with both? If Whittington ever sat on the stone of tradition, that stone must have previously existed there and been associated with other objects or purposes, probably before Whittington even was born. There is good reason at all events to believe that the original stone consisted of a cross, mounted on a broad, low, basement, on which people may have easily seated themselves.

From London to Highgate the high road was anciently called the Hollow Way. Thus the Hollow Way and the High Gate formed the main road leading from London countrywards to the north. It was thus that the district on either side of the Hollow Way got the name which it still retains of Holloway. More anciently the name was "Holwey beside London." It was at length distinguished as upper and nether or lower Holloway. Another spot in the Islington of old was long known by the name of Hollow, and Sadler's Hollow. This was at what we now call Sadler's Wells. In the seventeenth and eighteenth centuries that part of Islington which lay in or near to Clerkenwell parish, towards Goswell-street end, and near the New River at that place, presented a rude aspect, for the earth and soil had been dug for gravel for road-making purposes by one Sadler, a road-surveyor of those days, and his name has been preserved in that of Sadler's Wells and Sadler's Hollow: this spot indeed long retained the name of Hollow, being called "The Hollow in the City-road" till about 1803, when it was filled up, and "Dalby-place," as it was first called, built upon it. Over this "Hollow" the New River water was formerly conducted in a trough, as it was at the boarded river below Highbury and at Bushhill, near Edmonton.

Towards the close of the reign of Charles II. as Macaulay remarks, "Islington was almost a solitude; and poets loved to contrast its silence and repose with the din and turmoil of the monster London." Cowley, speaking of London, says,—

> E'en thou, who dost thy millions boast,
> A village less than Islington will grow,—
> A solitude almost.

On referring to the maps of London and its environs, made a century since, and, indeed, later, Islington is delineated as consisting of the High-street and the Green, continued at intervals by the Upper-street to the end of Wells-row, and the Lower-street as far as Thatched-house-row and the Thatched-house, at which point the houses on both sides terminated. The buildings in both Upper and Lower street stood unconnectedly, and in the Upper-street, beyond Cross-street, were built only on the west side of that street. A few buildings were erected at the end of the back road in 1771 and 1774, and some new buildings about 1767 (Cumberland-row), rose on the east side of the High-street, near the Green; but buildings at that time progressed slowly in comparison with more modern times, and Islington was then almost as solitary, and as much exposed to depredation and robbery, as it was certified to have been a century previous.

"Surrounded by the fields," says Mr. Tomlins, to whose work we have been indebted for most of the previous information, "although connected by the highway of St. John-street-road with London, the appearance of Islington was pleasant, nay, one topographer, not more than fifty years since, styled it picturesque. At the commencement of the present century the lanes that communicated with the back road from the Upper-street had scarcely been built upon; the houses in Barnsbury-street (and those only on the north side), rose but slowly, about two, or perhaps three, at one time? and in Steward's-lane, now Park-street, there were not more than six houses. Aged people there are who recollect the High-street and lower-street lined on each side with trees; several large elms stood opposite the Angel, and Nelson, in 1811, notices the rural aspect Islington presented in haymaking season. The ancient houses and inns, most of them in former times the residences of the nobility and gentry from the time of Henry VIII. to the end of the reign of Charles I. presented an antiquated appearance. In the High-street, the Angel that, to borrow the words of Mr. Cromwell, retained the aspect of a large country inn, and of which the interior or courtyard as it existed more than a century, has been preserved by Hogarth in his print of 'A Stage Coach,' 1747: then the Peacock, a long-roofed and capacious building; the White Lion, of sottish celebrity, and the ancient range of buildings at the Three Hats. In the Upper-street, there was the old Vicarage House; the Pied Bull, formerly the abode of Sir John Miller in the time of James I.; and opposite Rufford's-buildings there existed, previous to 1812, a large wood-framed mansion. In the Lower-street also were numerous ancient buildings; indeed, that part of Islington town seems to have been far more ancient than the upper side of High-street, and contained what were once spacious mansions, afterwards converted into schools, inns, manufactories, and pauper farm-houses, all now taken down to make way for uniform rows of brick-built shops for the use of a trading population."

Stretching far away to the north are houses—houses—everywhere; and in a few years it will be difficult to find a green field in Islington. Several public structures are now rising,—the Post Office, the Police Station, and the Vestry Hall: whether or not these structures will be found to improve this large and important district to the extent that should be the case remains to be seen. Some general measures are much needed for the improvement of the High-street. It might be made one of the noblest roads in the neighbourhood of the metropolis.

Mr. Edlyne Tomlins's book is a very superior production, displaying industry, erudition, and a cultivated mind. He has sought to take a more enlarged view of the antiquities of Islington than that which has been presented by his predecessors, and has produced a book of much interest and value.

RAG FAIR, PETTICOAT-LANE.

THE DEBATABLE LANDS IN LONDON.

PETTICOAT-LANE has been figuring in Parliament. It has been shown that vast numbers of persons congregate here every Sunday morning, partly to traffic and partly for plunder. The Lord Mayor confirmed what had been stated, and said he had been astonished to find that this was the case. The readers of the *Builder* will not be astonished, because they were told something of the place years ago. The Lord Mayor said he had communicated with Sir R. Mayne upon the subject, with the view of seeing whether the evil could not be abated. But the House was probably not aware that Petticoat-lane was peculiarly situated. It was a very long street, one half of which was in Middlesex and the other half in London; and, unless the police on both sides agreed upon one plan of action, the nuisance could not be effectually dealt with. Booths of all descriptions were erected, and a complete fair was held in that locality regularly every Sunday, and attended by between 12,000 and 15,000 persons. It is another example of those debatable lands to which we have lately drawn attention.

Petticoat-lane, our readers will recollect, is famous for its market of second-hand clothes, from those of the richest in the land to the tattered garments of poverty. It must be seen in order to be properly understood. Such adventurous traveller as may wish to examine this large colony of an ancient and unchanged people, would do well to turn into Houndsditch from Bishopsgate-street, and then to the left along Cutler-street, and he will soon reach a large market, in which many of the most substantial of the dealers, male and female, have stalls and other accommodation. It is not a very easy matter, however, to reach this centre, for at certain times the approaches are densely crowded by Jew dealing with Jew, and the "tug of war," in the shape of loud words and energetic action, is startling. The contents of bags are turned out, and one piece of costume, after due eloquence has been used on each side, is exchanged for another, boots and shoes for hats, or coats for trowsers.

There are parts of this marvellous metropolis where no clothes' man would think it worth while to enter: even the exchangers of crockery and glass would not trouble themselves to call; but in these places "dolly shops" illegally advance money on such matters as pawnbrokers would not meddle with; and great is the interest paid for advances by the very poorest of the community. For the smallest sum up to one shilling, a halfpenny a month is charged, so that for the loan of sixpence they pay sixpence at the end of the year. From such shops as these, and from rag shops, "goods" are brought to Petticoat-lane: even the articles which have been thrown out as useless, and are gathered in the streets by the bone-seeker, find consideration in this neighbourhood: the upper parts of shoes, though the soles may be in a hopeless state; the soles or heels of others, from which the upper leathers have departed,—are sold to those who know how to dispose of them to skilful artists, who, by joining many parts together, will, if he may be believed, "make them better as new." Garments which, in the eyes of most persons, would seem to be quite useless, are eagerly purchased by other artists, who, with marvellous powers and chemical knowledge, turn, patch, and cleanse these cast-off habiliments, and put upon them a gloss which gives them a charm in the eyes of a future purchaser. Oh, strange and composite world!

In advancing to the central mart, the visitor will pass, as well as he can, through the crowd, without meeting with much notice, for all are too busy with their own pursuits. He will be surprised at the spirit of trading which is shown on all sides of him: an old hat is disputed about as if it were a matter of life and death. In the interior of the market a stranger attracts immediate attention; and if well dressed, has numerous communications made to him: the seemingly in want of a coat is, however, the most attractive; and those who have experienced the rush of touters and porters at some foreign steam-boat station, may form some idea of the manner in which his attention is divided by the numerous offers. A man must either have an empty purse or great firmness, to avoid making a purchase.

The immense quantities of goods here, suitable for markets at home and abroad, suggest that in London there is a greatness even in the sale of old clothes. The busiest time is in the afternoon, from two to five o'clock. Past this exchange, Petticoat-lane stretches in a long line, and this is generally thronged with dealers, some of whom carry on their business in shops, while in front of them others pitch their goods on the ground.

Being lately in this district on a Saturday evening, near the close of the Jews' Sabbath, we were tempted to another examination of the old houses which, on the east side of Houndsditch, differ so much from the more modern buildings, and mark the margin of the Great Fire. Looking up Cutler-street, the silence which prevailed, recollecting the place on other days, was striking. The shops were closed. Jewesses, many of them richly dressed, formed gossiping groups. In Petticoat-lane the same observance of the day was general, and shows, to some extent at least, the respect of this people for their Sabbath, in spite of their love of gain.

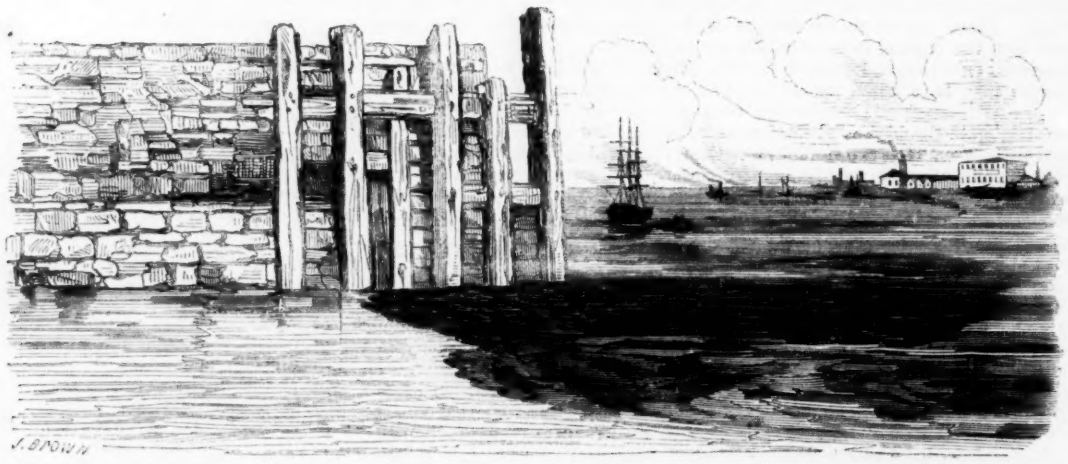
Although the places of business (even some of the public-houses) were nearly all closed, the place was thronged by such a multitude, all in their gala costume, that some idea might be formed of the dense population which occupies the surrounding neighbourhood. The artistic observer will notice amongst the young girls faces of great beauty, of that peculiar cast which has been transmitted from generation to generation since the days of Moses.

We have before referred to this neighbourhood, but may again mention that Petticoat-lane is a narrow thoroughfare, from which branch off numerous alleys and courts: most of the latter are reached by gateways, some of which are of very circumscribed width, and are generally built up at the extremity. The houses are small, the population is very large, and sanitary supervision is here required: some of the pavements are in a miserable condition, and the drainage seems to be very defective. Hebrew-court appears to be in as bad a condition in this respect as it was half-a-dozen years ago; and here in the summer-time the refuse water must remain in stagnant pools, much to the danger of the inhabitants. In addition to that, some of the trapped gully-holes in Petticoat-lane are stopped up. Mulberry-court is very badly situated: the entrance is dark and narrow: beyond are thirteen or fourteen houses, and narrow avenues pass here and there, not so regular, but in something of the same manner, as the cells of the honey-comb, and every part is swarming with life. There is a nuisance here of the most pestilential kind, but we prefer to pass it over. While examining these back places as the darkness began to close in, and the gaslight and the stars to glitter, the noise rapidly increased. A change had in the course of a few minutes come over Petticoat-lane: the shutters have been taken down, the windows lighted up, busy hands are at work displaying the merchandise: costermongers with fruit and fish bring in their barrows: from all sides throngs of working-men and others come in search of bargains; and until a late hour of the night the busy exchange goes on. The scene is marvellous, and it might be useful if those who have the making of laws would visit such places, to glance at the vast thousands who are crushed together, and study the circumstances under which they are placed. There is something in the sight which suggests the necessity of sanitary measures.

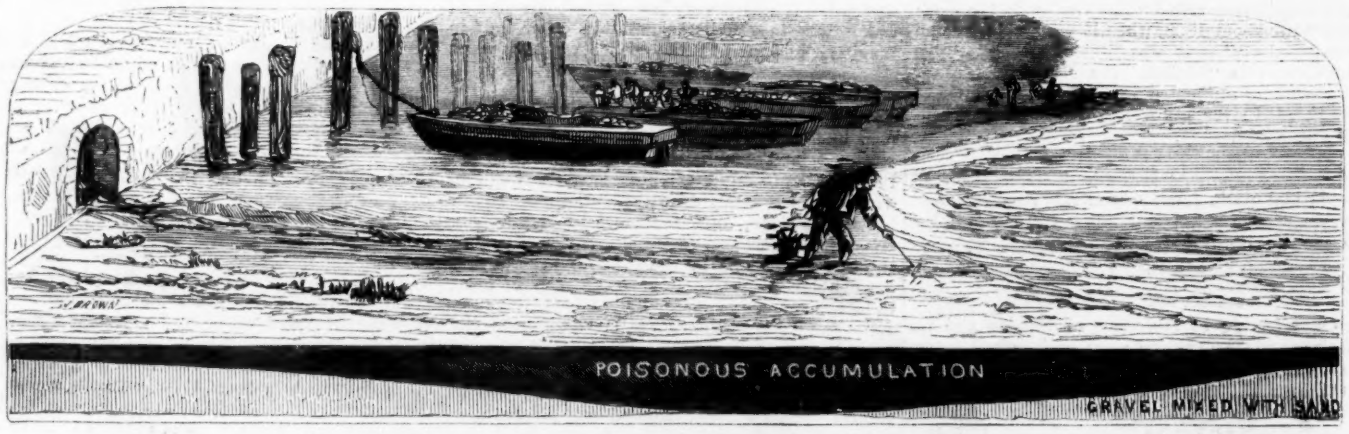
On the Sunday morning the market again opens, and, if anything, the confusion is greater: it reigns until the streets are forcibly cleared of dealers by the police; and it is the recent "discovery" of this fact by our legislators that has brought Petticoat-lane at this moment before the public.

VALUE OF LAND IN HERTS.—Last week, at the Mart, the "Almshoebury Estate" was put up. It lies altogether in the parishes of Ippolitts, Stevenage, and Hitchin, in one farm, adjoining "Knebworth," the estate of Sir E. B. Lytton, and consists of 666 acres, the whole of which is freehold, except a few acres, which are copyhold. After a spirited competition, Mr. Edward Roberts, the tenant of the farm, was declared as the purchaser at 25,700*l.* or nearly 39*l.* per acre, and 1,300*l.* for the timber.

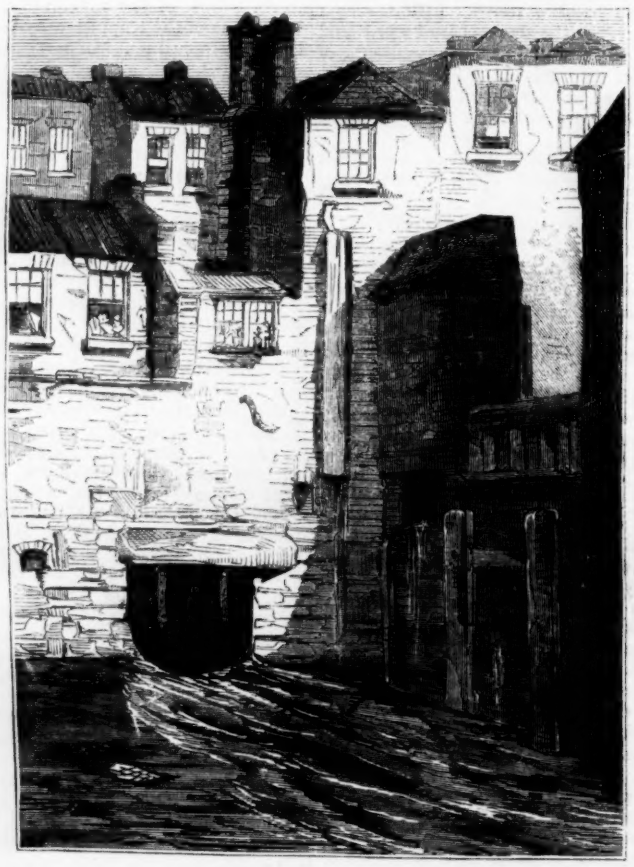
THE THAMES AND ITS TRIBUTARIES.*



The Wedding of the Waters at the Regent's Canal.



A Section of the Shore.



Sewer from Bow Common, at Limehouse.

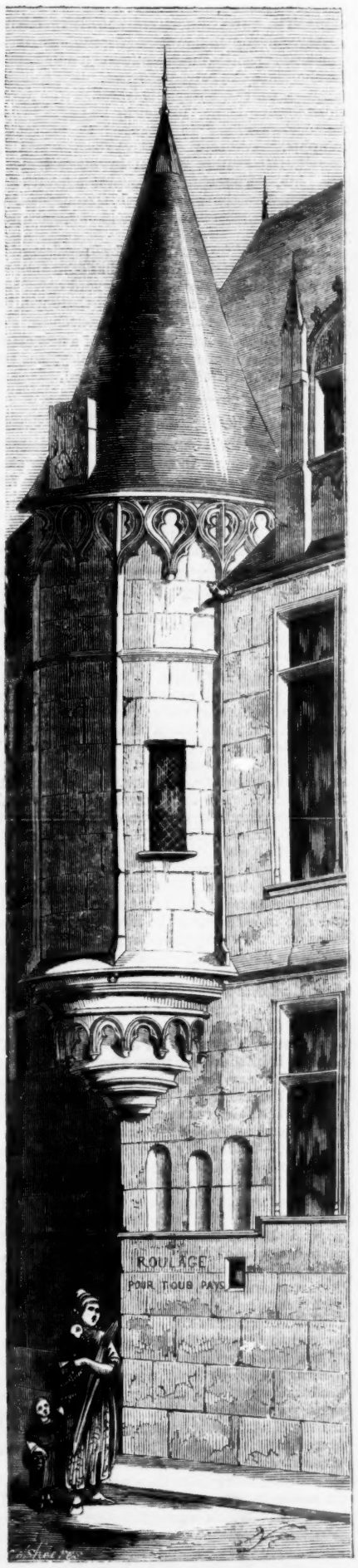
* See p. 449, *ante*.

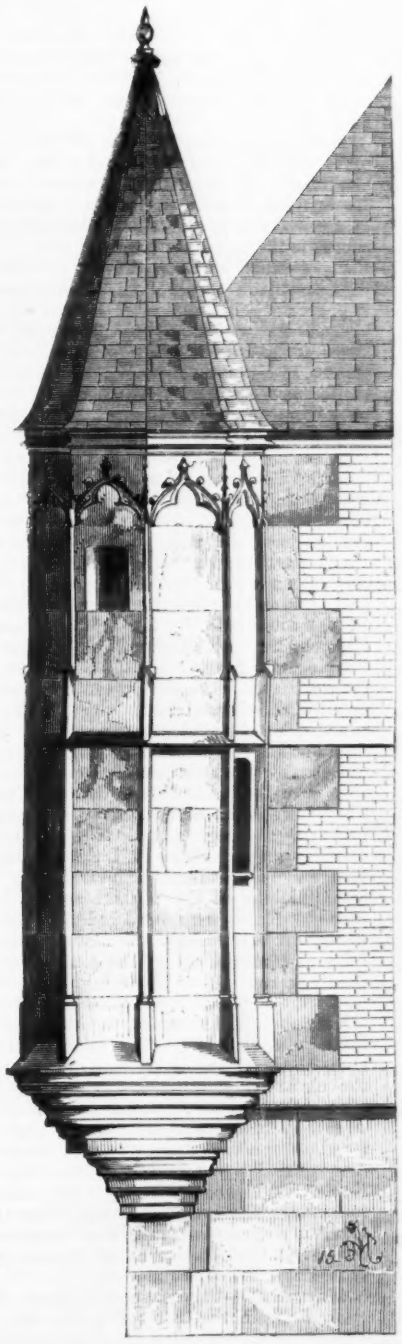
ANCIENT DOMESTIC ARCHITECTURE IN FRANCE.

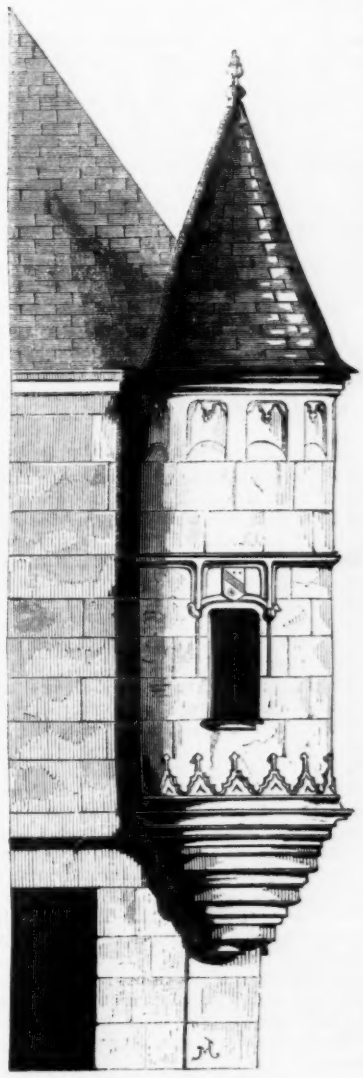
ANGLE TURRETS.

THE early châteaux were ordinarily built on the summits of mountains, were fortified with crenellated and machicolated towers, and filled with a hundred ingenious obstacles to the progress of those who might desire to gain possession of them by force or stratagem. At the end of the fifteenth century, however, residences ceased to be fortified, they were embellished: their builders gave up with joy the narrow and inconvenient stairs, formed, often, in the thickness of the walls, and to obtain more commodious and agreeable staircases, erected elegant turrets, projecting beyond the face of the building. This innovation had been commenced in the previous century, but the turrets preserved something of the fortress. When ultimately the lordly population of the châteaux moved into the towns, they brought with them their architectural baggage, and their first dwellings offered something agreeable to the eye in the outline of the turrets, with pointed roofs breaking the uniformity of the sky-line. These turrets were then for some time the distinctive mark of the nobles dwelling in the towns, but soon, as a matter of course, this feature was adopted in public monuments, and in the dwellings of the citizens. The position of the turrets varies, but is ordinarily at the angles of the building. In private dwellings the turrets are of two sorts: those which commence from the ground enclose usually a staircase:—we see some beautiful examples of it at the Hôtel de Cluny, and from the Hôtel de la Tremouille. When this house was demolished, the staircase was taken to the court of the *Ecole des Beaux Arts*.

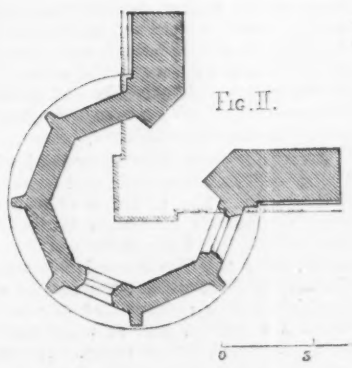
The other class of turrets, which are suspended, serve usually for habitation. We have engraved half-a-dozen specimens of these, of which we give three on the opposite page.

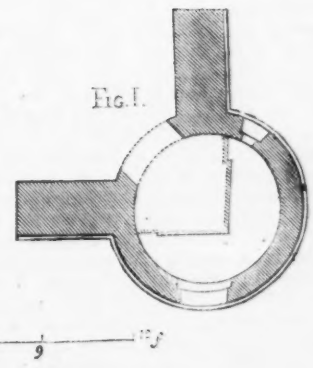


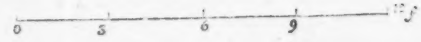




PLANS







ANCIENT DOMESTIC ARCHITECTURE, PARIS.——ANGLE TURRETS.

CHURCH-BUILDING NEWS.

Lincoln.—The Cathedral restorations on the south-east side above Russell's Chapel, says the local *Times*, are being proceeded with, necessarily slowly, from the minute delicacy of the work. For the present the dean and chapter, it is said, do not permit heads to be supplied to the remainder of the dilapidated niche statues.

Hawstead.—The nave of Hawstead Church has for several months been closed to admit of its repair and restoration, and has now been reopened. The exterior, besides receiving all the more obvious repairs and restorations which age or accidents had rendered necessary, is improved by the removal from the chancel of the plaster, which not only hid the cut flint walls, but also filled up the tracery of two of the windows blocked up on account of the monuments in the interior. Inside, the floor has been laid with coloured tiles; the roof appears as it did before the "axes and hammers" of the Round-heads touched it; old pews have been removed, and benches of oak with carved poppy-heads substituted. The chancel-screen has been renovated, the stone quoining scraped and mended, and the monuments on the walls cleaned. The timbers of the roof, which have long been deprived of their apparent support, now rest upon carved stone corbels. The whole of the works have been executed by Messrs. Rattee and Kett, of Cambridge.

Brighton.—A piece of granite, weighing 18 tons, prepared by the sculptor, and landed at Shoreham, has been thence drawn into Brighton by eighteen horses, and deposited in the New Cemetery, where it is to form a portion of the mausoleum intended to be erected for the family of the Marquis of Bristol.

Sherborne.—In the restoration of Sherborne church, which is being proceeded with at the sole cost of Geo. Wingfield Digby, esq. great progress has been made, and the opening of the chancel is spoken of for the 18th August. All the substantial stonework connected with the fabric of the building is completed: large portions of the stained-glass windows are already in: the emblazoning of the chancel roof is nearly completed; and the floor, some screens, and the altar, are all the heavy works that remain to be done. The roof is enlivened with gold and brilliant colours: every rib is gilded, the bosses gilt and coloured, and panels emblazoned with the Digby crest, the arms of Sherborne Abbey, and those of old Sarum and the Bishop of Salisbury quartered. This work is proceeding under the direction of Mr. Crace. The large windows of the clerestory and the altar window are being fitted by Messrs. Clayton and Bell with stained glass, the upper rows being filled with figures of saints and learned men, such as St. Alban and the Venerable Bede, and the lower with Bishops of Schireburn. The altar will represent Scriptural scenes, types, and anti-types. The altar-piece will be nearly 19 feet high, of Caen stone, bearing subjects in bas reliefs,—"The Last Supper" and "The Ascension" under a heavy fretted canopy. The altar will be approached from the nave by twelve steps placed in flights, at intervals, and composed of Crackmore marble—a hard, boldly-marked stone, which is quarried on the estate of Mr. Digby, near Milborne. This marble, after exposure, is of a greyish blue, and it is said that, for columns, it will be found more effective than Purbeck marble.

Horfield.—The small memorial church erected by the incumbent of Horfield and his family, and offered gratuitously to the public as a place of worship, has been opened by licence from the bishop of the diocese. The building stands on sloping ground, about half way between the parish church and Bristol. It was intended at first for a chapel school, the plan being taken from one by Carpenter, furnished to the *Ecclesiæ Instrumenta*, altered and carried out under the superintendence of Mr. Welsh, architect. It is a plain Gothic structure, consisting of nave, chancel, south porch, and vestry, with at the west end a bell turret, surmounted by a slated spire, 22 feet high: it is capable of accommodating from two hundred to three hundred people. The east window is filled with painted glass, representing, in three divisions, the Crucifixion, Resurrection, and Ascension, with three angels in the head lights. The chancel is fitted up choir-wise, with a lectern in the middle: it is paved with Minton's black, red, and purple tiles. On the south side of the chancel is a memorial window by Mr. O'Connor, illustrating the narrative of the Raising of Lazarus, Mary meeting Jesus, and Lazarus coming forth from the Tomb. The body of the church is fitted up with open seats, and the oak rafters of the roof shown. At the west end are three painted windows. That in the centre contains two figures, Faith and Hope, and emblems of the cross and anchor. The windows on either side contain, one the figure of St. Michael, to whom the church is dedicated, and the other the Angel Gabriel. The other windows of the church are filled in with ground glass. The builders employed in the work were,—carpenter, Lewis, St. Michael's-hill; mason, Wilkins; tiler and plasterer, Cantle, Stapleton; and smith, Edbrooke, and Co.

Middle (Shrewsbury).—The old parish church of Middle has been re-opened; the extensive alterations and improvements which the Rev. G. H. Egerton, the rector, has been carrying out, being now completed. The main entrance to the church is through a porch on the north side, near the west end, the doorway having moulded jambs, with shafts, and carved capitals. On each side of the porch is a trefoil light. The old Roman cornice, on the wall heads of the church, has been displaced, and substituted by a moulded Gothic cornice, in character with the general style of the old tower, which has been retained. The gables have been considerably elevated. The whole of the new stonework is executed in Grinshill white stone, which contrasts with the old sandstone, which is of a deep red colour. Several of the windows have been given by the following donors, viz. the west tower window, by Lady Marjoribanks, wife of the rev. rector; the west aisle window, by Mrs. Philip Egerton; the three windows on the north side by Sir John Marjoribanks, bart., Mr. Marjoribanks, and the Rev. Thomas Stanifrith; those on the south side, by the Dowager Lady Grey Egerton, Mr. and Mrs. Philips H. Egerton, Mr. Cunningham, the architect, and Messrs. Groves, the contractors. A trefoil light has been introduced in the chancel gable, over the east chancel window, filled in with stained glass. A vestry has been added to the south side of the chancel. The roofs which formerly covered church and aisle were decayed and in a dangerous condition. They have been substituted by strongly framed principals, having arched ribs, supported on moulded stone corbels. All the timbers of the roofs are open, stained and varnished. The interior fittings of the chancel are of dark oak, carved. These were furnished by Mr. George Shaw, of Saddleworth. The pews, which have been constructed out of the old oak of the pew framings, are open. These have been executed under the personal superintendence of the Rev. Mr. Egerton, and according to his designs. The floors under the pews are elevated about 3 inches above the level of the passages, which, as well as the chancel and altar, are laid with Minton's tiles. The base of the tower which was formerly separated from the church by the arch, is now fitted up as a baptistery. The centre of the window is fitted up with stained glass, representing St. Peter. The cost of the improvements amounts to 2,000*l.* The architect is Mr. John Cunningham, of Liverpool, and the contractors are Messrs. T. and J. Groves, of Shrewsbury. Mr. Jarvis superintended the work.

Askerswell.—The new parish church of Askerswell, built in the Early Perpendicular style of architecture, was consecrated on the 16th ult. The new church occupies the same site as the original one, but is larger, the present dimensions being 98 feet long and 26 feet broad, and capable of containing about 200 persons. It has been restored by Mr. J. Chick, of Beaminster, builder; the architect being Mr. Talbot T. Bury, of London. Of the former structure nothing remains but the tower, a specimen of the Early Perpendicular style of architecture, which dates back as far as 1470, and a Norman font of uncertain date, in some parts defaced. The cost of the new edifice, exceeding 700*l.* has been defrayed, with the exception of a slight deficiency.

Liverpool.—The New Congregational Church, Oxton-road, has been dedicated by the ministers of that body. The edifice is of white Stourton stone, the outside dimensions being—length, 94 feet; width, 47 feet: inside—length, 87 feet; width, 43 feet. The chancel is separated from the nave by three arches: the central arch is 35 feet high, and is appropriated to vestries, above which is a gallery, part of which may hereafter be appropriated for an organ. The roof is not entirely open, but flattened across with a panelled ceiling, the five principals being filled with carved tracery. The front gable contains a six-light window, 32 feet high by 18 feet wide, the polished head of which is filled with stained glass; the side windows being 16 feet 6 by 6 feet wide; and the south gable is lighted by four windows. The windows are filled with amber cathedral glass, with edgings of ruby and purple. The tower stands at the east end, and when completed, will be 120 feet high. The pinnacles at the corners of the church are crocketed, and 24 feet high. The church will hold 500 adults on the ground, and 100 in the gallery. The aisles are 4 feet 2 inches wide. The pews are open, and have foliated heads. Among the interior decorations is an ornamental panelled wainscoting extending round the church to the height of 7 feet. The principal entrance to the church is through the tower, which forms a lobby, 13 feet by 25 feet, in which the doorways are so arranged as to exclude draughts. A lecture or school room is provided beneath the church, 42 feet by 40 feet, and 13 feet high. The church occupies a position at the junction of the Woodchurch, Oxton, and Ball's roads, and is erected on a freehold of 1,800 square yards.

Ramsgate.—The contract for repairing the ancient church of St. Lawrence has been taken by Mr. W. E. Smith, who has commenced operations. The galleries will be removed, and there will be a stone pulpit in lieu of the present one.

Trusley.—The foundation-stone of a new church for Long-lane, in the parish of Trusley, has been laid by Mr. William Cox, of Brailsford.

PROVINCIAL NEWS.

Reading.—It will be seen from an advertisement in another column that new schools are about to be erected in the district of Saint John from the designs of Mr. Charles Smith, architect, of Reading. We understand the schools are to accommodate 100 boys and 100 girls. Each school is to have a class-room and gallery for 45 children.

Bristol.—The erection of the new quay in Hotwell-road is proceeding. About five hundred men are engaged on it.

Chew Stoke (Somerset).—The new parochial schools, lately erected in this parish, have been opened. The buildings, including residence, are from the designs of Mr. S. B. Gabriel, architect, of Bristol, and are of native stone, with freestone dressings, the timber stained, and the roof covered with dun and red coloured tiles.

Holyhead.—The new temporary pier, for which the House of Commons voted 21,000*l.* will be commenced immediately. Messrs. Rigby have taken the contract. The estimate for the construction of the two piers to be made from Salt Island for the new harbour is 600,000*l.* The plans of these have been decided upon.

Chester.—The local Archæological Society of Chester has done a great deal towards diffusing a taste for preserving much that remains in that city, and also in influencing the taste of new erections, so as to be in accordance with an old city like Chester. Messrs. Brown are at present engaged in erecting a pile of buildings adjoining their own shop, Mediæval in character. The style is Flemish Gothic. The front of the row is carried on a series of Gothic arches, the street line being broken by a tower. The whole is of Bath stone. This erection is intended for three shops, and the vaults underneath are for a wine-merchant's premises. Part of the latter will comprise a perfect ancient crypt of the thirteenth century, of which they are justly proud, and which of course they will preserve.

Derby.—On the day of opening of the Derby Baths and Washhouses, 659 persons paid for admission. An entrance in the centre of the building leads through the house to the men's baths, the whole of which have been attached to the original house, leaving the same entire. The baths are reached through a corridor lighted by skylights in an open roof supported on ornamental cast-iron principals, covered with boarding, finished with a cornice and brackets to support the principals. The women's baths are approached through a separate doorway from the street. The whole of the baths are lighted by skylights in boarded roof, supported by light wrought-iron principals, the boarding stained and varnished, and the iron-work painted light blue. The swimming-baths are lined with glazed bricks, the bottom being formed with hydraulic Portland cement, the whole curbed with rubbed stone and rounded edges. A separate entrance from the street is also provided for access to the washhouse, stokery, &c. The house will furnish accommodation for a superintendent's residence and stores, and the remainder will be occupied as offices, &c. by the Local Board of Health. The front of the house is now in progress of alteration. There is to be a portico, in which will be three distinct entrances to the men's and women's department and to the offices. The total cost, including fittings, &c. will amount to about 4,000*l.* The building contract and works connected therewith have been executed by Mr. Dusautoy; and the ironfounders', smiths', and engineers' works, by Mr. J. Haywood, jun. and

Mr. T. Crump; the bell-hanging by Mr. Haslam, all of Derby. The establishment has been fitted up with gas by Mr. T. Crump. The whole has been executed from designs, &c. and under the direction of Messrs. Giles and Brookhouse, architects. Mr. Jinks, of Leicester, was clerk of the works.

West Hartlepool.—An extensive foundry, which will give employment to upwards of 500 hands, is shortly to be erected on the Cliffe House estate, West Hartlepool. Mr. Suggitt, the builder, is putting in the foundations. The great bulk of the material used in the refreshment department of the recent Art-Treasures Exhibition at Manchester will be employed in the construction.

Morpeth.—One of the largest buildings (now nearly completed) in the north of England is the Northumberland Pauper Lunatic Asylum, which is situated in the immediate vicinity of the town of Morpeth. The edifice has been erected from the designs of Mr. Henry Welch. The contractors for the masonry, brickwork, carpentry, joiners' work, plastering, and plumbing, are Messrs. Wilson and Gibson, of Newcastle, their contract being nearly 39,000*l.*; which does not include the heating apparatus, furnaces for the hot-water supply, &c. which were furnished by Mr. Bennet, of Liverpool. The iron water-tanks were supplied from the works of Messrs. Hawks, Crawshay, and Co. Gateshead; and the hydrants, force engines, and cast-iron pipes, are from the manufactory of Messrs. Davies and Co. London.

ENGINEERING AND OTHER WORKS ABROAD.

The following statement of the works on the Austrian railway, *François-Joseph*, appears in the report of the first general meeting of shareholders, held at Vienna, May 22, 1858, according to the information laid before them by M. Etzel, head councillor of the kingdom of Wertemberg, their engineer, one of the most distinguished in his profession.

Four groups united under the name of the *Réseau de l'Orient* (Orient-bahn), from the system or net-work of the lines conceded to this company, and the engineer-in-chief, with his usual skill, has drawn up his portion of the general report, divided into four distinct heads.

I.—*Order of the execution of the different lines.* The first act of concession embodied four groups.

A. Vienna by Oedenburg-Gross-Kanisa to Esseg.
B. Neu Szony by Stuhlweissenburg to Esseg.
C. Ofen by Gross-Kanisa to the State South railway.

These were to be constructed in ten years, but on account of the monetary crisis, the company have been permitted to restrict themselves to the following groups, which are to form the Orient-bahn *réseau*:—

FIRST GROUP.	Miles.
1. Vienna, Oedenburg, Steinmanger to Kanisa	28
2. Pragerhof (formerly called Sottshach) to Kanisa	15
3. Uj, Szony (Comorn), Stuhlweissenburg, to Ofen	19
4. Kanisa to Stuhlweissenburg	19
	81
SECOND GROUP.	
5. Kanisa to Esseg	24
6. Stuhlweissenburg to Esseg	29
	134
THIRD GROUP.	
7. Esseg to Semlin	23
	157

In the case of *priority* of the above lines, should such be rendered necessary from financial motives, the following order has been recommended by the engineer-in-chief:—Ofen to Pragerhof to be commenced first; then the Szony-Stuhlweissenburg; afterwards the Vienna—Oedenburg—Steinmanger—Kanisa.

II. *Organization of the Service.*—Each inspecting engineer to have from 15 to 20 miles. Engineers of "section" (resident engineers) to have 5 to 7 miles to superintend directly. An administrative inspector, or "travelling director," is stationed with each inspecting engineer. The state of the staff at the end of 1857 was as follows:—

Travelling directors	13
Inspecting engineers	12
Ditto for surveys	7
Ten working "*sections*"	86
Five surveying ditto	22
Total	140

When the first group is in fair way of construction, the staff will be increased to 180, of whom 36 will belong to the secretary's department.

III. *Surveys.*—The only project completed for work has been that from the Southern Railway to Kanisa; and though this part of the group is not foremost in the above programme, the company have wisely entered upon 15 miles of that portion. Pollshack is fixed upon as the junction between the Orient-bahn and the South Austrian Railway by the concession; but the studies for the line have shown that it was not the most favourable point: so Pragerhof is to be the spot. Branch lines have been surveyed from Pettau to Marburg, and Marburg to Klagenfurth, to join the Corinthian line.

From Kanisa to Stuhlweisseinburg there were two lines surveyed for the portion between Kiskomarom and Stuhlweissenburg, one by the north of Lake Balaton and Vespaim, the other on the south side of the lake, which has been approved of on account of its being 2¼ miles shorter than the former, having better inclines, and being cheaper by 7,500,000 florins. From Stuhlweissenburg to Ofen and Uj-Szony the line traverses the Bakony hills, near Sarkany, on account of the important communications between Pragerhof and Ofen on the one hand, and between Vienna and Esseg on the other, thus rendering it advisable to adopt this *tracé* instead of that by crossing the mountains at Galla, and joining Ofen through Bicske. In September, 1857, the surveys between Vienna and Kanisa were commenced (twenty-eight miles), and are nearly finished. In all, 120 miles were surveyed last year on the Orient-bahn "*réseau*." During the last month the surveys, plans, estimates, &c. have been completed for fifty-three miles. The details have all been studied most minutely, as to the difficulties both of construction and expenditure, and the result will be of great service to the company. The heaviest works are the earthworks between Kanisa and Komarvaros, across the Valley of the Drave, in the bason of the Ballaton Lake; those between Sio-Fok and Lepsény to pass from the basin of the Plaltensée to the "*plateau*" in the environs of Stuhlweissenburg; a tunnel of 1,000 feet at the foot of the Bloksberg, near Ofen; heavy retaining walls, &c. near Fridau, where the line passes alongside the river Drave and near Promolos, along the Danube; two bridges (over the Drave and the Mur) of 12 and 5 spans respectively, varying from 80 to 96 feet; iron lattice on stone piers. There are thirty large and intermediate stations on the whole series of the above lines.

IV. *State of the Works.*—From Pettau to Kanisa the first lot was contracted for on the 9th of December. Three other lots and the Drave bridge, the retaining walls near Fridau, and the bridge over the Mur, near Kollori, followed soon after. The other contracts will be put up for competition very shortly. The company treated with an English house for 650,000 cwt. of rails, at 6 florins 30 kreutzers per cwt.; and they attribute to the Indian war and the late crisis the low price, in spite of which the rails are proved to be of the best quality. They calculate that they have saved two million florins by this favourable bargain. Fifty locomotives are ordered at the Government workshops at Vienna, and thirty at Esslingen, at an average rate of 30,500 florins, duty included.

IRISH ANTIQUITIES.

MR. CHARLES BROWN, of Chester, in a communication to Professor Donaldson on the subject of his paper recently read at the Royal Institute of British Architects upon Irish Mediæval Antiquities, alludes to various other remains quite within reach of the tourist; and as the references may induce some professional wanderers in the sister isle to visit and describe the sites mentioned, we avail ourselves of the permission to make some extracts from the communication.

"Not far from Cashel is the abbey of Athasel, which is very fine and extensive, but sadly neglected,—in fact, almost the personification of desolation. It stands on the bank of the same river as Holy Cross, the Suire.

In the county of Meath, at the county-town of Trim, there is a very fine castle in good preservation, with curtain-walls entire to the bank of the river (the Boyne); on the opposite side extensive remains of an abbey, with a very lofty tower. About a mile below Trim, also on the Boyne, stands Newtown Abbey—a majestic pile; and about another mile still lower, the abbey of Bective, which is in good preservation. At both Newtown and Bective there are ancient bridges, with the remains of fortifications. From Trim I proceeded by way of Navan to Drogheda, and thence took a car to Monasterboice, to inspect the crosses in the lonely graveyard, and with which I was much pleased. In returning to Drogheda, I visited the site of the old abbey of Mellifont, where I was amply repaid by finding the remains of an octagonal building of the Norman period, which I presume to have been a baptistery. The half of it was entire, consisting of four open arches below, with four smaller openings above them. I have never yet met with a single English friend who has visited either Trim, Newtown, Bective, or Mellifont, although thousands pay their respects to William's Pillar on the Boyne, which is only two miles distant from the latter place. I need scarcely add how great a pleasure the lovers of antiquity lose by so doing."

SOME NOTES ON PAPER-STAINING.

WE have in former papers referred to the tapestry, embossed leather, and other wall hangings and coverings which were long used by our ancestors. In the reigns of Charles I. and II. and Queen Anne, the ceilings of the rooms in the better class of houses were remarkable for their elaborate and beautiful ornamentation. The fireplaces were also much enriched, and in most instances wooden panels, with bold mouldings, served to distribute the ornament, and produce a general harmony. As time passed on, the panelling and other enrichments went out of use, and flat tints of oil colour were used in the best houses, and washes of different tints in others. Sixty years ago paper printing for wall covers was but little in use, and the devices chiefly consisted of round spots, arranged in geometrical forms. Various improvements were rapidly made, and printing from several blocks, in two or three colours, came largely into use, and the paper-staining business became one of considerable importance. The process is similar to the oil-cloth printing described in another volume of the *Builder*,—except that sized water-colour is used instead of oil. At that time a large duty was charged on this manufacture, and a still greater on papers made in France, in order to protect the British trade against the superior design and colour of the French patterns. An intelligent person who has been for about forty years connected with the paper-staining business, says, that many of the common wall-papers were printed on old newspapers for the purpose of evading the duty. From time to time various improvements were introduced,—gilding, hand-shading, &c. Each new discovery was carefully kept secret from the general trade; and the hands which had most skill were kept in apartments where their operations could not be overlooked by others. When the papering of walls became to a considerable extent the fashion, an attempt was made to rival it in cheapness by an invention called "slab-dashing" or "stencilling." On the first introduction of this the most simple of the paper patterns were traced, and the necessary forms cut out of cardboard. Some of the diapers produced by this means have a very neat and clean appearance, and when the plaster of the walls was good, served in some respects a better purpose than paper. No duty having been laid on this branch by the Government, the manufacturers of stained paper grew jealous, and organised a society for the protection of their trade; a deputation from which proceeded in carriages to the Chancellor of the Exchequer, who remarked, that "when a deputation from the 'slabdashers' came up in carriages, he would consider about the duty."

At this time the best of the journeymen paper-stainers received large wages, some as much as from 4*l.* to 5*l.* a-week. The mere manual labour of printing the paper with the block patterns being a matter which did not require an extraordinary amount of either intellect or ingenuity, as a natural consequence, in spite of the restrictions and regulations made by workmen, who had also their associations, numbers flocked to the trade, and this and competition caused the wages to decline.

In one instance, a partner was taken into a large paper-staining manufactory, who had not been accustomed to the peculiar fashions of the trade. He was surprised to see the best workmen, who had some secret methods of shading, gilding, &c. shut up in their apartments. He had the barriers thrown down, and remarked, that the quality of the articles produced at the manufactory must be improved by the whole body of the workmen having an opportunity of seeing the operations of the best hands. The demand for paper for walls continued to increase, and to become cheaper in cost, and at length the large Government duty was repealed; and as,

by Sir Robert Peel's Act, the trade was thrown open to the world's competition, the price of ornamental paper became so low, that it has now nearly superseded wall-colouring and stencilling in even the poorest cottages. The alteration had a serious effect on the workmen engaged in this business. The price of work, which is chiefly done by piece, fell from 4s. 6d. to 1s. 6d. This was a great hardship for the men; but they rather made matters worse by a strike against the reduction of wages, which was the means of causing many to spend the money which had been saved during more prosperous times. One man who was looked up to in a certain establishment, for his ability, and who took a leading part in this losing game, had saved upwards of 300*l.* The masters, however, marked him for his opposition, and for three years he was unable to get any employment; at length he got work, but at very much reduced wages, for the enterprising men of Lancashire had set the steam-engine to work to print the paper, and compete in price with that produced by foreigners. The immediate effect of this to the hand paper printer was very disastrous: the workman just mentioned, who for years earned from 3*l.* to 4*l.* a week, cannot now get 15s. Notwithstanding the introduction of steam, a large quantity of paper is still stained in London by the hand; some in the manufactory, but, in many instances, such of the men as can rent a suitable workshop undertake to do a quantity of work, and employ others to complete it. This, however, has the unfortunate effect of still further reducing prices. The chief of the British paper-staining manufactories are in Manchester and the neighbourhood; there are, however, two or three firms in London in which steam power has been introduced.

"ANCIENT ROME."

MR. ASHPITEL has published a "Description and Key to the View of Ancient Rome, now in the Royal Academy" (Stanford, Charing-cross), showing the authorities for the various restorations introduced, namely, first,—

"Every accessible inscription, particularly the celebrated monumentum Ancyranum; those very valuable early manuscripts usually called the works of Regionaries, being short descriptions or rather catalogues of every edifice in every 'Regio,' or *ward* of the city; some very curious mediæval manuscripts describing the various buildings with the inscriptions then existing thereon, and intended as a sort of guide books for pilgrims, particularly the 'Ordo Romanus,' and what is called the 'Anonymus Einsiedlensis;'" and of course the numerous allusions in all classic authors, particularly the valuable, though imperfect, work of Varro de Linguâ Latinâ."

A curious and important monument has also been consulted, usually called the Lapides Capitolini. These are fragments of marble, formerly part of the pavement of the temple of Romulus and Remus, on which was inscribed a complete plan of Rome to a large scale, showing every house and almost every column.

We have already spoken of the Restoration in our notice of the Academy exhibition, and would recommend an examination of the drawing with the "Key" in the hand. Mr. Ashpitel's erudition and skill are well known. Those who would investigate the disputed points of Roman topography will find some elaborate papers on Rome in our volume for 1857.

METROPOLITAN BOARD OF WORKS AND THE MAIN DRAINAGE.

AT a meeting of the Board, on Tuesday, the 29th June, the following resolution, moved by Mr. A. Wright, and seconded by Mr. Carpmael, was carried by twenty-three to eight:—

"That the engineer having prepared a plan and estimate for the main drainage, in accordance with the recommendations in the report of Messrs. Bidder, Hawksley, and Bazalgette, which plan contains several alternatives, that the plan with the alternatives following be adopted:—

1. The engineers having given the Board the option of two schemes for the western district, first, carrying the western sewage into the general intercepting system, and, second, deodorizing the western sewage at its junction with the Thames, that the last alternative be adopted.

2. The engineers having recommended that the low level sewer upon the north side should be carried in a Thames embankment between Westminster and London bridges, to avoid the settlement of and damage to property in the Strand, Fleet-street, &c. that the Board is willing to pay for such part of a Thames embankment so required in such proportion as the drainage scheme may be fairly debited with, or to undertake the construction of the embankment of such part of the river for drainage and other purposes, upon a contribution being given by Government.

3. That the delivery of the sewage at the points named shall not be deemed a final measure; but when the main drainage is completed the sewage shall be delivered into the Thames direct, or deodorized before delivery, or used for irrigation and sewage manure, as experience may determine.

4. That this plan and estimate be submitted to her Majesty's Chief Commissioner for approval by the chairman, eight members of the Board, engineer, and clerk, and that his attention be at the same time directed to the letter of this Board of the 17th day of January, 1857, to her Majesty's then Chancellor of the Exchequer, setting forth grounds justifying the expectation that the Government will be prepared to assist the Board in obtaining the command of the funds required for their operations."

Amendments were previously proposed by Mr. Doulton and Alderman Cubitt, but were not carried.

A motion that it is desirable the Board should, pending the adjournment of the drainage question, obtain information on the expediency of connecting an embankment of the Thames with any plan for the drainage, was withdrawn. A motion by Mr. Leslie to "reject the report of Messrs. Bidder, Hawksley, and Bazalgette, on account of the engineering absurdities it proposes," fell to the ground, not being seconded.

THE LATE MR. P. F. ROBINSON, ARCHITECT.

WE have to record the death, at eighty-two, of Mr. Peter Frederick Robinson, late of Lower Brook-street, London, which took place a few days ago at Boulogne-sur-Mer. Mr. Robinson was brought up with Henry Holland, the architect, and at one time occupied a prominent place in the profession. Amongst other buildings executed from his designs may be mentioned the Egyptian Hall, Piccadilly, and a house for General Wallis. He had for pupils Mr. George Jackson, late of Leamington, Mr. Lansdown, and Mr. Taylor, afterwards the architectural publisher. Mr. Robinson was one of the first members of the Institute of British Architects, and published several works connected with the profession. Some pecuniary difficulties a few years ago led him to select Boulogne for his residence, where he remained until his death. His amiability and other social qualities will be recalled by many of our readers.

BOARD OF HEALTH ACTIONS.

In the Exchequer of Pleas, Heath v. *Pilbrow, June* 25, 1858, *before Mr. Justice Hill.*—The plaintiff was the clerk to the Tottenham Local Board of Health, and the defendant had been the engineer to the Board from its establishment in 1850, to September last. The plaintiff's case occupied the court three hours, from which it appeared that the defendant had in the year 1850, prepared for the Board the district plans, and had subsequently designed and superintended the general plans for supplying the district with water and an efficient sewerage; and still later had designed and superintended the execution of some additional water-works. The plaintiff brought this action to recover damages on three grounds. 1st. For an alleged breach of contract on the part of the defendant in the execution of his agreement, to supply certain sections in 1850, in connection with his plans of the district. 2nd. For the retention of certain drawings prepared by the defendant, in reference to the original and extended water-works; and, 3rd. For the retention by the defendant, of the field level books, and field note-books, used by him in his original survey of the district.

The defendant, on the other hand, alleged that he had faithfully fulfilled his contract with the Board; and that his reason for omitting to make the sections was, that they were not required by the general Board of Health, and that he furnished, at the desire of that Board, and in lieu of sections, a tabulated statement of information which rendered sections wholly unnecessary. And as to the retained drawings, the defendant claimed them as his own property, because he was paid a per-centage for designing and superintending the execution of the works to which they related, and because he had never bargained to part with the drawings; and as to the field level and note books, he claimed them as indisputably his own. It appeared that rather than contest the plaintiff's right to the drawings, which were of no value to the defendant, he delivered them to the plaintiff after the action had been brought; but the Board were not satisfied with this, and continued the action for damages and costs.

The defendant's case was opened by Mr. Macaulay; and Mr. Austin, from the Board of Health, was under examination for the defendant, when the judge interfered, and plaintiff's counsel intimated a wish to defendant's counsel to close the case, and a treaty ensued between the counsel and solicitors and some members of the Tottenham Board, which resulted in the plaintiff relinquishing all his complaints, and agreeing to pay the defendant 100*l.* for his field level and note books, and in full of all claims and demands, if he had any,—a settlement which met the entire approbation of the learned judge and the defendant, who had reason to feel that he had been very unjustly sued. The counsel for the plaintiff were Mr. Edwin James, Q.C. and Mr. Hawkins; and for the defendant, Mr. Macaulay, Q.C. and Mr. Laxton. Mr. Howard was his solicitor.

The counsel for the plaintiff bore witness to the efficiency of the defendant's services, and the judge showed unmistakably his opinion that such an action should not have been brought.

LAW NOTES.

Income-tax on Premises.—The Attorney-General filed an information to recover two penalties of 50*l.* each from a person who had refused to allow her tenant to deduct income-tax paid by him in respect of certain premises. The defendant submitted that there was an annuity of 100*l.* a year secured to her on the premises by a deed, which stated that she was to receive the 100*l.* "free and clear of and from all taxes whatsoever." The Court of Exchequer has held that she was still bound to allow the tenant who had paid in the first instance what was portion of her income-tax to deduct such payment from his rent. As there was no fraud, the Crown promised to be lenient respecting the penalties.—*Attorney-General* v. *Shield.*

Steamer—Accident to Passenger.—A passenger on board of a steamer which was hired for the day by the person with whom he contracted for his passage, sustained a personal injury through the breaking of a portion of the tackle. It has been held that he was right in bringing his action against the owners of the ship, and was not obliged to sue the person who had hired the ship for the day.—*Dalyell* v. *Tyrer.*

Metropolis Local Management Act.—An application was made the other day to the Court of Queen's Bench for a *mandamus* to cause a road, called Blenheim-road, in Islington, to be lighted with gas. The Court refused to grant the *mandamus*, being of opinion that Blenheim-road is not a street within the meaning of the Metropolis Local Management Act.—*The Queen* v. *The Vestry of St. Mary's, Islington.*

Timber—Wreck.—Some timber was imported into Yarmouth, and was moored in the river, two miles from the sea. By some accident the timber broke loose, and floated out to sea. The coast-guard secured it, and preferred a claim for salvage. The justices of Yarmouth awarded salvage, and costs. A special case was brought before the Court of Exchequer, which has held, that the timber, having only floated from its moorings, was not "wreck" according to the Merchant Shipping Act, and that the justices had, therefore, no jurisdiction to make an award of salvage.—*Palmer* v. *Rouse.*

ARCHITECTURE AT UNIVERSITY COLLEGE, LONDON.

THE annual distribution of prizes took place on Wednesday, the 30th of June, Sir George Cornewall Lewis, M.P. in the chair, supported by Lord Brougham, Mr. Grote, Mr. Goldsmidt, Mr. Kossuth, and other distinguished persons. Professor Donaldson announced the prizes as follows:—Architecture—Fine-Art: first year, prize and first certificate, Horace Gundry; second certificate, Louis Kossuth; third ditto, Francis Kossuth. Second year, prize and first certificate: — Babb; second certificate, No. 831; third ditto, Frederic Judge. Science—Construction: first year, prize and first certificate, Edw. Asher; second certificate, Francis Kossuth; third ditto, F. Hy. Johnson. Second year prize and first certificate: — Babb; second certificate, F. Judge; third ditto, No. 831.

PER-CENTAGE TO ARCHITECTS.

SIR,—As one of the unprofessional public I have read with some interest the letter of "An Architect" in the *Builder* of last week, denying the correctness of Mr. Devett's statement in the House of Commons, that "architects take fees from tradesmen for passing their bills." Now, however entitled to respect the opinion of "An Architect" may be, I think he will find it very difficult to remove the impression from the public mind, that Mr. Devett's charge is well founded. My own experience upon the subject leads me to a very decided opinion; but I had better give you facts. Thus,—I recently had occasion for the services of an architect, on rather an extensive job. I applied to one gentleman, highly recommended to me, having several noble patrons; and he, in reply to my inquiry, said his fees were "five per cent. from his client, and two per cent. from the builder employed." I declined the services of this gentleman, and went to another equally well recommended, who expressed great astonishment when I told him what I had heard about fees from builders. He said "How was it possible for an architect to be free from suspicion who accepted any kind of remuneration from the builder?" &c. &c. Well, this gentleman, whom I employed, I after-

wards found had, during the progress of my works (which were executed by the builder, under contract, in a most unsatisfactory manner), been employed by my builder to make drawings for some cottages which he intended to erect at some future time somewhere. Now, will your correspondent say whether this is permitted to an honourable architect to do? If it is professional, I can only say that it appears to me more objectionable than the first-named gentleman's "two per cent." openly avowed. I inclose my card for your private satisfaction only.

Δ

OMNIBUS MONOPOLY.

GOOD MR. BUILDER,—Can you do anything to aid the transit of us poor Brompton people? When the great Plate Glass Company was talked about (by the way, what has become of it?), and with regard to gas, it was rightly said in your pages that the public should look jealously at those amalgamations, which mean monopoly; and if any instance be needed to prove the necessity, I would quote the proceedings of the General Omnibus Company on the Fulham-road. This dominant body run their vehicles not with the slightest regard to public convenience or the wants of the neighbourhood, but solely with reference to injuring the proprietors of another set of omnibuses on the road, to whom we have reason to be grateful, because until they came the General Company charged sixpence for a hundred yards. The system the latter pursue is to run two, three, and sometimes even four of their omnibuses with each one of the rival company's. It will be of no use their denying this: I have counted them myself over and over again. The road is thus turned into a race-ground at certain intervals. But then comes the chief annoyance of which the neighbourhood complains. In the evening, when the vehicles of the opposing company are not running, it is scarcely possible to get a seat in an omnibus. I have waited again and again for more than an hour, the one or two that passed being full; and, as to returning at night, there is scarcely a chance. For weeks, coming from Coventry-street, I have been forced either to get into a Chelsea omnibus, which puts me out at Sloane-street, or a cab. Do, then, beg the Company to run their vehicles a little more equably, and with *some* reference to the convenience of the public, and you will be entitled to the thanks of Brompton in general, and of me in particular. ALEXANDER SQUARE.

THE BARRACKS AT GOSPORT.

SIR,—The construction of barracks under the Royal Engineers has lately attracted attention, and much of your space has been occupied by exposing the many errors, and the great waste of public money, by that arm of the public service. Something ought to be said of the way in which the works have been done in the erection of the new barracks, at Gosport, the designs for which were prepared under the surveyor to the War Department. I hear of all sorts of errors in the construction and arrangement of the buildings, and of the alterations which were necessary for the safety of those who may inhabit the barracks. There has been a shameful waste of public money on buildings which, when completed, will not be a credit to the country. Towards the end of last year, five arches, the erroneous construction of which was pointed out to the authorities, gave way, and killed one of the workmen.

Since that, the commanding officer's house gave way, under the enormous weight which was put over the arches (turned on iron girders, to make them bomb-proof), consisting of gravel and mould.

An inquiry into the arrangement and carrying out of the designs of Gosport Barracks, and the failures at Elson Fort, would be a very pretty thing on paper, and would, I think, convince the British public that it is high time some other method should be adopted in the erection of barracks. ONE IN THE SECRET.

Books Received.

VARIORUM.

IN "Sanitary Reform; being the Substance of a Lecture prepared for delivery at the Mechanics' Institution, Winchester," by H. Newman, sanitary inspector to the corporation, and surveyor to the commissioners of pavements, of that city, the lecturer urges the advisability of getting rid of cesspools, and substituting a complete system of sewerage and drainage, of which Winchester is much in want. Mr. Newman has admittedly made good use of the *Builder's* sanitary efforts, and he appears to have a full and proper notion of the responsibilities of his position.——"Extracts from a large Pamphlet of Reports on Sir William Burnett's Disinfecting Fluid," though designed, doubtless, to promote the sale of this fluid, must be admitted to have the merit of recommending the use of a most useful article,—namely, chloride of zinc, which, while effectually destroying such poisonous agencies as sulphuretted hydrogen, is devoid of the powerful odour of chloride of lime, which is offensive to some, and injurious to everything metallic in and about a dwelling.——In a "Report on Patent Slip Dock Accommodation for the Harbour of Kingston, Jamaica;" Mr. Daniel Miller, of the firm of Bell and Miller, C.E. Glasgow, describes the most important harbour belonging to our West-Indian colonies, and points out several sites more or less fitting for patent slip dock accommodation, where large vessels can be hauled up and repaired. Mr. Miller estimates the cost of constructing there a slip dock of 3,000 tons register at 30,000*l.* or less. The stone of the neighbourhood is said to be a hard compact limestone.——"Principles of Animal Nutrition, particularly as regards the vigorous Condition of the Horse, and the fattening of Cattle, Swine, Sheep, &c." by G. H. Bolton, Liverpool, we had almost cast aside as obviously intended to push the sale of a particular sort of article called "Palatine foods" as special flesh, fat, or milk yielders; but there appears to be some force in the principles of nutrition advocated, and also some novelty; and although we have not time to give the subject such consideration as might enable us to express any decided opinion on it, still the arguments are suggestive, and remind us of certain views stated in our columns as to the connection of hydrogen and the liver with respiration and the oxygenation of the blood in the lungs.

Miscellanea.

HOSPITAL FOR CONSUMPTION, BROMPTON.—The chapel of the hospital, of which we gave an engraving some time ago, on its completion, was seen for the first time by many on Sunday last, when it was thrown open to the public on the occasion of a sermon by the Bishop of Limerick, in aid of the funds of the hospital. The preacher said "it was a matter of regret that the funds of the charity were inadequate to the wants of those already in the hospital, and prevented the possibility of admitting as many patients as the committee of the institution wished. There were eighty beds which could not now be filled owing to the want of funds, but it was trusted that those who were blessed with means would give what they could, and, in asking them to do so, it was only to give, as it were, the crumbs from their tables, so that it should not be said that any one of the portals of such a praiseworthy and beneficial institution should be kept closed to the numerous sufferers who were clamouring for admission and relief."

STONE CHURCH.—DEAR MR. EDITOR, — This week, while in the vicinty, I made a pilgrimage to the beautiful old church of Stone, in Kent, described by you recently. After sketching and measuring some windows externally, I thought I should like to take a glance at the interior, and accordingly sought the keys. To my astonishment I was directed to the rector's, Mr. King's, which, after toiling half a mile in the hot sun, I found, and leaving my name, was permitted to take the key, and requested to return it in the afternoon. On again arriving at the church, I in vain endeavoured to gain access, the door being bolted on the inside, and was at last obliged to return the key, after loss of time, three miles' walk, and only to be assured at the rector's, by the servant, that it was the right key, but a spring lock. Knowing the power of your paper to rectify these inconveniences and hinderances to the study of the art, allow me to claim a few lines of your valuable space for the insertion of the facts, hoping that should I again visit the church, I shall be admitted without disappointment. I was informed by some girls from the school adjoining, that mine was not a solitary case.—JAMES G. STAPELTON, JUN.

THE WORKSOP GAS COMPANY.—The directors of this company had the good sense to resolve, last year, in accordance with our well-known views, "to reduce the price of their gas, and thereby to induce a more extensive consumption." The result of a reduction from 5s. 10d. to 5s. per 1,000 cubic feet, has already, it appears, "been extremely gratifying." The revenue of the undertaking "has not only been kept up to the amount of former years, but it has exceeded that of any previous year," and has already yielded a satisfactory dividend. So says the present year's report, and we have not the least doubt that next year still greater profit will be reaped from the reduction already made. The increase for the year on 4,835,000 cubic feet has been 971,700 cubic feet. The surplus revenue has been 682*l.* 14s. 6d which has enabled the directors to pay a dividend of 5 per cent. besides laying aside 245*l.* 14s. 6d. (or not very far short of another 5 per cent.), to form the commencement of a contingent fund. It would be well if the affairs of every gas company were conducted on similar enlightened and liberal principles: both the shareholders and the public would be benefited.

JIB-DOORS—A QUERY.—SIR,—Could you allow me, through the medium of your columns, to inquire if any of your readers could suggest a good method of covering a jib-door, which is not to be covered with paper in the ordinary fashion, but occurs in a wall which is to be finished in fine stucco, and in a situation where the non-appearance of the door is "*sine qua non*." Any hints on this subject from any of your readers who may have had to surmount a similar case, would oblige—E. C.

MILITARY MONUMENT. — Mr. Richardson is erecting, for the 23rd Royal Welsh Fusiliers, a Crimean memorial, about to be fixed at Carmarthen. It is of Portland stone, about 30 feet high, and the ironwork is appropriate. The details include an obelisk with bull-flowers on the shaft, and square patera; in the base, panels; in the quatrefoils are the regimental badges,—rising sun, red dragon, white horse, and sphinx, and Prince of Wales's plume and "*Ich dien*" on the cross surmounting the whole. The same sculptor has on view a large mural tablet to General the late Earl of Cork, to be erected in a few days in Frome Church, Somerset.

ST. ALBAN'S ARCHITECTURAL SOCIETY.—This Society held its thirteenth anniversary meeting in the Assembly-room at the Town-hall, on Thursday, the 17th inst. In the absence of the Earl of Verulam, the chair was taken by the Rev. Dr. Nicholson, who opened the proceedings in a brief address, and called upon the hon. secretary, the Rev. J. G. Hale, to read the report. The Rev. Henry Hall, M.A. read a paper "On the Names of Localities in Hertfordshire," and Mr. F. A. Skidmore read one "On the Metal Work of the Middle Ages." The lecturer called attention to the fact that, while the varied improvements from machinery and motive power in the manufacture of iron, and the discovery of fresh mines in other quarters of the globe of the precious metals, opened up new sources of metallic constructive and decorative skill, we were infinitely behind our forefathers in the application of metals to our churches and domestic uses; and drew a strong picture of the brilliancy and beauty of churches so enriched, contrasted with the cold effects of white stone and black oak.

CHATHAM BARRACKS: DEFICIENCY OF WATER. Much dissatisfaction, according to the *South Eastern Gazette*, has been occasioned amongst the troops at Chatham, in consequence of a garrison order, issued by the commandant, directing that the troops are to discontinue the use of the baths in the several ablution-rooms, owing to the scarcity of water. The military authorities persist, it is said, in refusing to avail themselves of the water-works recently established; and, besides, millions of gallons of pure water are daily pumped away into the Medway, at the dockyard, by the powerful steam engines which are draining off the land water to enable the large works, now in progress, to be proceeded with. During the past winter the troops at Chatham were deprived of their proper amount of fresh air from the very crowded state of the barracks, and the authorities at the War-office have only just got over the difficulty. Already there have been several cases of measles and small pox among the troops.

FOLDING-DOORS.—AN INQUIRY.—May I ask through you what is the best mode of keeping out noise where there is a folding-door separating two rooms, or other wooden partition? My reason for asking is that I have school-rooms so separated, and which I desire to make as impervious to sound as possible. Any one giving available information on this head will do a kindness to—A CLERGYMAN.

THE HACKNEY BROOK —When lately in the neighbourhood of the Hackney-brook, which runs open in various parts of the neighbourhood of Hackney and Homerton, we could not fail to compare "small things with a greater." Viewing the discoloured condition of this brook, and its evident effect upon another sense, when we considered not only this, but that the new cattle-market and other districts drain into it, and that each month more drainage is passed into the stream, it did not require any nice scientific inquiry to convince us that the brook is at the present time the cause of (and must rapidly become more so) a much less healthy atmosphere than it was at the time it ran clearly and pleasantly along. And yet many are to be found who say that it is perfectly harmless; though most agree that the Hackney brook is already a dangerous nuisance.*

* Some of the houses built on the edge of the stream, near Burgess's Colour Works, are of a most unsatisfactory description. A man of moderate height cannot stand upright in the principal room, even in the highest part. In those which we looked at no water-butts were provided, and the people complained of the short time the supply ran in, and of the difficulty there was in keeping it fit for use. One tenant more ingenious than the rest, has sunk a hole in the garden, from which he can always have a supply, in consequence of its being rather below the level of the other pipes. "I don't do this for any wrong, you see, sir, but I can always have it fresh, and I am sure that we do not use near so much as if it was turned on in the usual way." No one thinks of using the brook water for any household purpose; and one man, a healthy-looking labouring man, who has lived a number of years in Homerton, said that he had had nineteen children, five only of whom were living: two died of cholera, some of small-pox.

THE CASTLE-ROCK ALTERATIONS AT EDINBURGH.—In consequence of General Peel's instructions to Colonel Moody to allow the citizens of Edinburgh to see his plans for new buildings and alterations at Edinburgh Castle, certain plans of works not yet done were exhibited for nine days, at the Architectural Institute in Edinburgh. This does not appear to have given much satisfaction, for complaint is still made, not only of the disfigurement of the rock, but that Colonel Moody has not thought proper to exhibit any plan whatever of the works done as those authorized by the Government. A correspondent of the *Scotsman*, under the signature of "Vindex Caledonius," insists that the colonel is merely mystifying the citizens, and urges, as does Professor Syme, that he should be obliged to exhibit his plans and his authority for what has been already done. A memorial, also, has been forwarded to General Peel.

PAINTERS' STRIKE AT BELFAST.—The operative painters of Belfast having struck work, on a refusal of their employers to increase their wages to the extent of ½d. per hour (or 2s. 6d. a week, when in full work), a deputation of the workmen requested an interview with the masters, but were refused, and a public meeting of the Belfast tradesmen was held in the Nelson-rooms last week, when it was resolved to support the painters on strike in their demand on their employers. A deputation from the Painters' Society of Glasgow attended the meeting, and subscribed 50*l.* on the part of their society in behalf of the workmen on strike.

THE COMPETITION SYSTEM.—Some correspondents complain of having received from Mr. Edwards, of Fixby Hall, near Halifax, the terms on which he offers 50*l.* for the best design sent in for the erection of premises at Castle Carr. It is a good illustration of the tendency of the system.

A FOUNTAIN FOR GLOUCESTER.—The *Gloucester Mercury* is advocating the execution of Mr. Burges's fountain, of which we gave an engraving a few weeks ago. It appears that the corporation have deprived the citizens of the Southgate-street conduit, which for hundreds of years had given forth a plentiful and gratuitous supply of water. The design, therefore, comes at the right moment.

THE SLATE TRADE.—At the present time, when commerce generally is suffering from depression, says the *Chester Chronicle*, it is a matter of surprise that so much steadiness prevails in the slate trade of this part of the principality. During the month of May, 1858, the quantity of slates exported at Carnarvon and Port Dinorwic was 7,723 tons 18 cwt. showing an increase of 555 tons 2 cwt. on the exports for the corresponding period last year. About 500 tons were conveyed by railway from the Carnarvon Station in May, and we may safely calculate at least four-fifths more despatched overland from Port Dinorwic. This estimate gives a total of upwards of 10,000 tons for the month—which is 120,000 tons per annum. The figures fairly represent the average trade.

NATIONAL GALLERY FOR IRELAND.—A large deputation of noblemen and gentlemen from Ireland, among whom were Lords Clancarty, Belmore, and Downes, and headed by Lord Talbot de Malahide, had an interview with the Chancellor of Exchequer, in Downing-street, last week, for the purpose of urging him to sanction an estimate for the erection of a National Gallery for Ireland, which had been refused by the late Government. Having heard the deputation, the Chancellor expressed the pleasure he felt at the difference between this and former deputations from Ireland, which always came to complain of grievances or troubles, and concluded by stating that he would propose such a sum in the estimates as might meet the case.

CEMENT FLOORS.—Sir: A writer under the title of "Traveller," in last week's *Builder*, referring to your article on Hospitals in the preceding number, recommends a mode of flooring similar to that which he had seen in Italy, viz. a species of concrete formed of broken marble, travertine, and other hard stone readily found in that country. Permit me to suggest, that we have in Keene's cement a material admirably adapted for such purpose, and which has been used to a considerable extent in this country. It is largely in use for hall flooring, skirtings, &c.; but the entire floors of many public buildings, such as Kirkdale gaol, Stafford Lunatic Asylum, the Consumption Hospital at Walton-on Thames, and many others, have been laid in it. At Greenwich Hospital, all the wainscot linings in the various wards have been removed, and Keene's cement substituted. It is extremely hard and durable, capable of a fair amount of polish, and may be laid in patterns if thought desirable.—J. H. H.

DIRTY WATER-CISTERNS.—At the risk of being considered a sanitary bore, I must again call attention to water-cisterns; for, within the last fortnight, I have seen two in a dreadful state. One of them was at a large hotel, and always in use. At the bottom of this cistern there were 2 or 3 inches of muddy sediment, which, every time the water came in, was disturbed, and mixed with the water. The other was at a private house; and, when I took off the cover of the cistern, the lady of the house was frightened at the state it was in, and beseeched me to clean it out directly; but it was not near so bad as one in the same house, and which she could not see, as it was built under the floor of the water-closet. It is almost useless for the water companies being compelled to cover their reservoirs, and get their supply from a pure source, if people allow the water to be polluted after they get it in their house, by having no covers to the cistern, and not having them cleaned out oftener; and there are hundreds of cisterns built in such out-of-the-way places, that many people live in the house for years without knowing where they get the water from: therefore illness often results. I think, if public attention were directed by the officers of health of the different parishes, by handbills, something like those in the hot season in reference to the muzzling of dogs, it would be of advantage to the public health.—A WORKMAN.

RAMSDEN'S PATENT SASH.—Amongst the arrangements for allowing sashes to be taken easily from their frames, for the purposes of cleaning, painting, and repairing windows,—an important matter,—that patented by S. Ramsden has the advantage of simplicity. The fittings are adapted for all kinds of sash-windows, either old or new, and may be had at a very trifling expense.

ACCIDENT AT SHREWSBURY. — On Saturday before last, two heavy coping stones at the corner of the Raven Hotel, Shrewsbury, gave way, and killed one man and seriously injured another in their fall. Great alterations are being made on the premises, from the plans and under the superintendence of Mr. J. L. Randal, architect. The stone cornice had been newly put up, but the whole length of it came down, carrying with it several courses of brick.

THE MODERN GAS TUBE.—We condense from a local paper the following particulars as to the gas tube trade in Wednesbury, where it is chiefly prosecuted:—About thirty-five years since, Mr. Cornelius Whitehouse, of Wednesbury, obtained a patent for an improved method of making gas tubes for the use of street lamps, &c. The old way of making gas tubes was by welding them with hand-hammers. Mr. Whitehouse's plan was as follows:—A long thin strip of iron was heated and bent in the shape of a tube, and was called a "skelp:" the instrument by which this was done was called the "crocodile." The skelps were taken to the "fire," a peculiar furnace, and there welded by being drawn by machinery through two or three pairs of iron tongues, in which bell-mouth holes had been bored, of a suitable size for the tube that was wanted. The tubes were then straightened, proved, cut into such lengths as were wanted, and screwed at the ends. About twenty hands would make upwards of 2,000 feet of tubing per day. The patent was granted for twenty years, and afterwards renewed for six years more. During the last fifteen years some factories have been established where tubes are made in the same manner as at Mr. Russell's manufactory, and others where only connecting pieces, called "elbows and tees," are made. Messrs. Elcock and Lowe have lately obtained a patent for the manufacture of "round wrought-iron elbows." The patent is dated 27th November, 1857, and has just received the great seal. The men and youths employed in the gas tube trade in Wednesbury are—Russell's factory, High Bullen, Church-hill, 315; Webb's, Wednesbury-bridge, 200; Smith's, Bridge-street, 36; Russell and Knowles's, Oakswell End, 35; Elcock and Lowe's, Holyhead-road, 41.

[ADVERTISEMENT.]

SIR,—Messrs. Clark and Co. of 15, Gate-street, Lincoln's-inn-fields, in 1854, put in a new front to our premises here, consisting of handsome brass sashes, brass stall-board plates, one of their patent revolving wood-shutters, 75 feet long, measuring 750 feet super. (which works admirably), and closes in the whole of our premises in two minutes.

The whole of the work was executed in the best possible manner, with rigid punctuality, and at a very moderate price, has given us great satisfaction and we feel it our duty strongly to recommend them to all requiring such work. We are, sir, your obedient servants,

PARKINS and GOTTO.

24 and 25, Oxford-street, June 1st, 1857.

TENDERS.

For a new workhouse, schools, and other buildings, for the hamlet of Mild-end Old-town. Mr. William Dobson, architect. Quantities furnished by Mr. W. F. Meakin:—

Maeers	£34,700	0	0
Palmer and Son	34,215	0	0
Todd	33,490	0	0
Moxon	32,190	0	0
Ennor	31,600	0	0
Hack and Son	30,500	0	0
Downes	29,860	0	0
Ashby and Sons	29,500	0	0
McLean and Bird	29,285	0	0
Hocken	29,160	0	0
Perkuss	28,824	0	0
Blackburn	28,000	0	0
Evans, Brothers	27,850	0	0
Perry	27,846	0	0
Rowe	27,698	0	0
Willson	27,629	0	0
Hill	27,580	0	0
Wood and Son	26,635	0	0
Ayers and Co. Dover	25,558	0	0

For 1st Royal Cheshire Militia Barracks. Mr. T. Mainwaring Penson, architect:—

Yates, Liverpool	£9,828	0	0
Kilpin and Montgomery, ditto	9,480	0	0
Halroyd, ditto	9,275	0	0
Hitchen, Chester	8,960	0	0
Hughes, Aldford	8,775	0	0
Lockwood and Co. Chester	8,555	0	0
Carter, ditto	8,499	0	0
Roberts, ditto	8,449	0	0
Wigginer, ditto	8,250	10	0
Stone, Newton (accepted)	7,937	0	0
Warburton, Manchester	7,720	0	0

For schools to be built for the parish of St. George the Martyr. Messrs. Wigg, Son, and Oliver, architects. Quantities supplied by Mr. John Williams:—

Ashby and Horner	£2,465	0	0
G. Mansfield and Son	2,390	0	0
Joshua Higgs	2,350	0	0
I'Anson	2,244	0	0
Holland	2,216	0	0
Pritchard, Warwick-lane	2,180	0	0

For stables to be built at Adbury Lodge, near Newbury, Berks, for Mr. W. Fox, Jun. Messrs. Wigg, Son, and Oliver, architects:—

Adey and Son, Newbury	£1,516	0	0
G. Mansfield and Son	1,365	0	0
Holland	1,330	0	0

For bridge over the Cam at Littlebury, Cambridgeshire. Iron-work only. Messrs. Allan, Snooke, and Stock, architects:—

Headley and Manning, Cambridge	£399	5	0
Cottam and Cottam, St. Pancras Iron-works, London	379	0	0
H. and M. D. Grissell, London	378	0	0
Roberts and Co. London	373	0	0
Thames Iron-works, Blackwall	360	0	0
Coleman and Sons, Chelmsford	310	0	0

For farm-house and out-buildings at Cove Hythe, in Suffolk, for the trustees of the late Sir Edward Gooch, bart. Mr. George Glover, of Lowestoft, architect. Quantities not supplied:—

Woodroffe, Beccles	£890	0	0
Marsden, Wangford	777	17	0
Hilleary and Rix, Kessingland	767	14	0
Palmer, Southwold	765	10	0
Hilleary and Artis, Wrentham (accepted)	748	2	0

For dwelling-house at Seaham, near Sunderland. Mr. J. G. Brown, architect:—

Mich. F. Stonehouse, Sunderland	£485	0	0
Parkin Thornton, Jun. Seaham	453	0	0
Bailes and Conyers, Sunderland	450	0	0
John Campbell, Seaham	446	0	0
John Lee, Sunderland (accepted)	442	0	0
Samuel Hammond, Seaham	425	0	0

For additions to No. 59, Newington-causeway. Mr. Henry Jarvis, architect:—

Humphreys	£308	0	0
Thompson	308	0	0
Joseph Carter	269	0	0
Penlington (accepted)	266	0	0

For school adjoining Baptist Chapel, Crayford, Kent. Mr. Henry Jarvis, architect. Quantities supplied:—

W. Hill	£330	0	0
Moore	324	0	0
Ring and Stanger	302	0	0
Carter	298	0	0
Hart	297	16	0
Gumbrill	294	0	0
J. and G. Kemp (accepted)	290	0	0

For alterations to premises, 197, Bishopsgate-street Mr. Henry Jarvis, architect:—

Bowley, Brothers	£290	0	0
Joseph Carter	264	10	0
Downs (accepted)	263	0	0

For alterations and additions at Mr. Henley's public-house, St. George's-road, Southwark:—

Elston	£360	0	0
Furmer	359	13	0
Corbett	309	10	0
Saxby	259	0	0
Colls	150	0	0

SIR,—Surely there must be some mistake,—210*l.* difference from highest to lowest, and 109*l.* below the next to the lowest. (This job is close to the Blind Schools.)—T.